Building A Patchwork of Resilience

A Situated Participatory Housing Design Approach for Sylhet's Shonatola Village Community

Research Plan
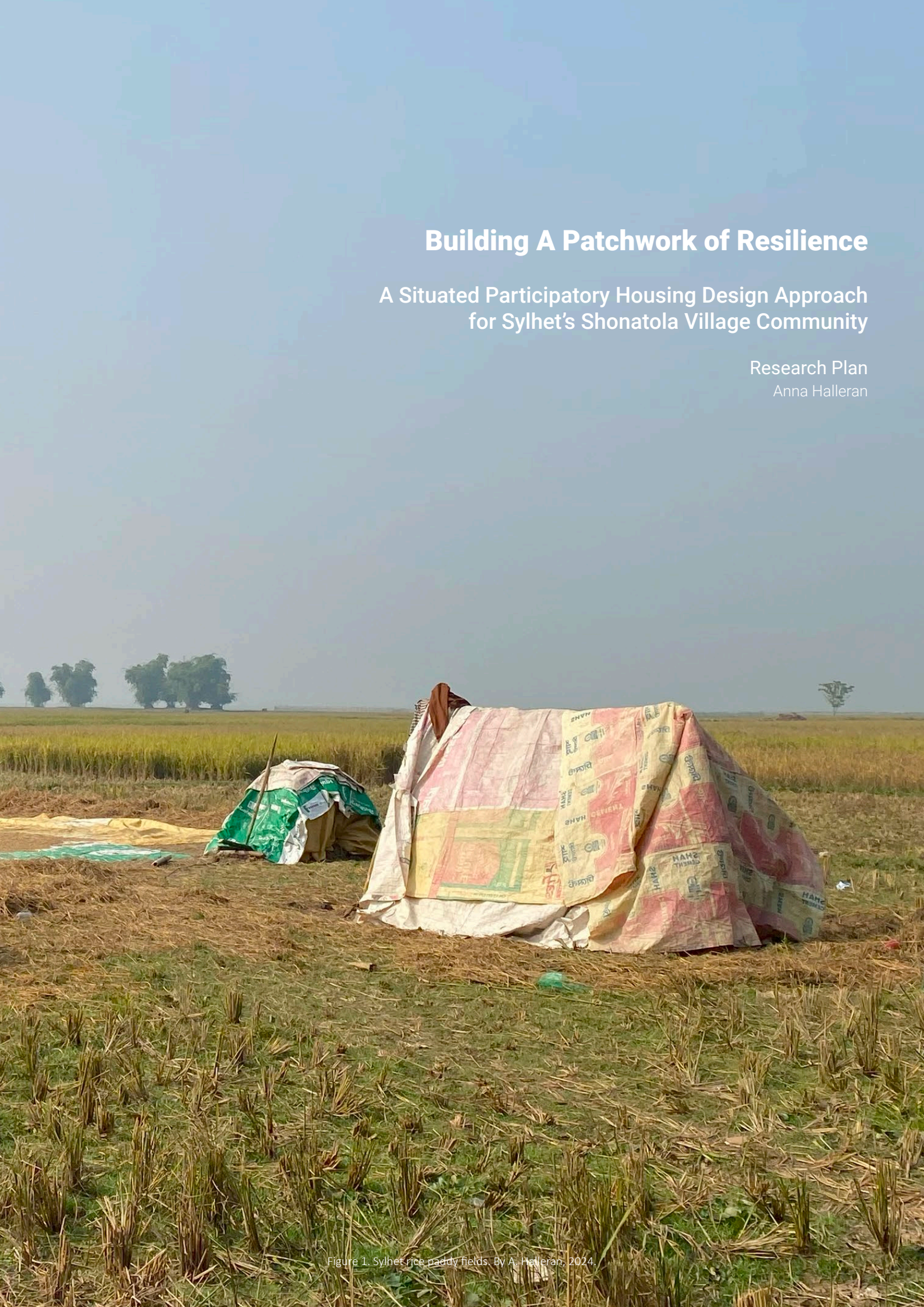Anna Halleran

Figure 1. Sylhet rice paddy fields. By A. Halleran, 2024.

Figure 2. Sylhet tea gardens. By A. Halleran, 2024.

Colophon

Figure 3. Clothes drying on line - West Bangladesh. By A. Halloran, 2024

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Figure 4. Study trip participants, in rice paddy field outside of Sylhet. By S. Anikate, 2024.

Introduction

"The wish for communion exists in the body. It is not for strategic reasons alone that gathering together has been at the heart of every movement for social change...These meetings were in themselves the realization of a desire that is at the core of human imaginings, the desire to locate ourselves in community, to make our survival a shared effort, to experience a palpable reverence in our connections with each other and the earth that sustains us".

Susan Griffin, The Eros of Everyday Life, 1995

Bangladesh is a country whose landscape is constantly changing due to its geographic location; as the majority of the country lies in the Ganges-Brahmaputra-Meghna Delta, it is especially vulnerable to extreme environmental distress. As such, the ways in which people live in Bangladesh must be adaptable to change, as living in a state of constant movement in a fluctuating landscape is routine. Despite the challenges that the people of Bangladesh endure, they are a people of hope, which fuels their resilience and has the potential to incite change (Paoletti, 2022). The region of Sylhet is located in North-Eastern Bangladesh. The major climate events which impact this area in particular include: significant changes in temperature, drought, heavy rainfall, cyclones and storm surges (Anik & Khan, 2012). As a result, these environmental variations lead to a lack of fish availability, scarcity of water during droughts and frequent flooding throughout heavy rainfall seasons. This leads to climate-induced migration as people are forced to flee their communities as they become internally displaced throughout the country (Rana, & Ilina, 2021). The ways in which the people of Bangladesh are affected by the environment sheds light on the vulnerabilities of human life and settlement. While in western countries, it may be easier to ignore just

how our world is being impacted by the climate crisis, in countries like Bangladesh, who are constantly face to face with the direct effects of climate change, the way of life has become an awakening to the grave dangers of global warming's threat to human existence.

The Shonatola village community is located in a peri-urban settlement North West of Sylhet city, between the Surma River and the Shari-Goyain River. This tightly knit community is made up of roughly 1800 people living in about 250 homes, on average seven people per dwelling. The current housing conditions throughout the village vary significantly. There are substantial infrastructure upgrades that need to be addressed to improve the quality of life of villagers, primarily the roads and public space design, water management systems and sanitation upgrades. Land throughout the village is individually owned, and passed down generationally. Families who are more financially stable typically live in concrete or brick homes, while those who have less financial security live in bamboo, tin and mud homes. Shared courtyard space and public gathering space is lacking throughout the village, although it is strongly desired. As a country, Bangladesh is very homogenous, with a strong sense of Bengali nationalism and islamic culture (Siddiqui, 2024). The primary religion of Shonatola village is muslim.

Villagers throughout Shonatola experience a myriad of forms of environmental and economic problems including poor housing, poverty from a lack of resource mobilisation, limited access to education, food insecurity, depleting access to land, diminishing economic opportunities and insufficient healthcare, hygiene and sanitation resources (Hassan, 2015). It is paramount that one must consider how these challenges intersect and relate to one another when studying this community, so that thoughtful research towards potential solutions can be completed.

Literature Review

When one begins a research project, it is crucial to review existing literature so that the research that is produced may fill existing gaps that remain, building upon what has previously been done. This analysis is no different. This section will give a brief overview of literature that examines topics including: participatory design, the importance of regionality in architecture, systemic problems that exist in the production of housing, Indigenous research, colonialism and strategies for creating quality housing for the poor. Each text discussed has proven to become pivotal in forming a strong foundation for the development of this research project.

Kenneth Frampton: Prospects for a Critical Regionalism (1983) - In 1983, British architect, historian and critic Kenneth Frampton coined the term critical regionalism. This concept was in response to the effects of globalisation on the architectural field that he felt led to a sense of placelessness in modernism and excessive ornamentation in postmodernism (Cutieru, 2021). Frampton explores how architecture must return to its sense of place and context as he encourages the development of a new architecture that embraces global influences and technological advancements while remaining deeply grounded in its context (Frampton, 1983).

Amos Rapoport: House Form and Culture (1969) - Amos Rapoport is a Polish psychologist, professor and architect and he is one of the founders of Environment-Behavior Studies. In his seminal text *House Form and Culture*, Rapoport explores the deep connections between the culture of a place and its surrounding built environment. This is examined through an analysis of housing developments globally which demonstrate how different cultures have significant regional, environmental, economic and social impacts on how people live and build.

Figure 5. Residential building in Sylhet city. By A. Halleran, 2024.

Markus Miesssen: The Nightmare of Participation (2010) - German architect and writer, Markus Miessen in his text *The Nightmare of Participation*, explores the topic of participatory design. He questions, what is democracy? Furthermore, should everyone always have an equal say in important decision making? Where is this urgency of inclusion stemming from, and is it warranted? These questions are important to consider when taking part in any form of collaborative design. Miessen is quite resistant to the romanticised notions of inclusion that participatory design promises to create authentic people-centric architecture. Instead, he offers the conclusion that consensus cannot be used as a mode to achieve innovation and that every form of participatory design will always lead to conflict. In order to create change, an agonistic democratic model that features an 'outsider' to incite and provoke new ways of thinking where conflict is inevitable, is necessary. This leads to Miessen's proposal of a new 'post-consensus model' for participatory design.

Christopher Alexander: The Timeless Way of Building (1979) - *The Timeless Way of Building* is the first introductory volume of Christopher Alexander's exploration of an alternative movement of architecture and urbanism. In this text, Alexander explores the process of what he describes as a "timeless way of building" as a natural occurrence that brings order to spaces and the people that inhabit them. It is a thoughtful way of building and shaping space that is deeply grounded in its surroundings, and establishes an intangible spatial quality and atmosphere that cannot be simply defined. Throughout this idealist analysis of space, Alexander examinines the process of creating them by investigating the quality of space, spatial and organisational urban patterns that exist and the ways in which these spaces are inhabited by people.

Christopher Alexander: A Pattern Language (1977) - *A Pattern Language* is the second volume and most widely referenced text in Christopher Alexander's series of his exploration toward a new approach to architecture and urban design. The text explores the significance of recognizing recurring design problems that exist in our built environment. These design challenges are always slightly different; depending on their context and scale, in order to reach a solution, a greater holistic understanding of these patterns must be acknowledged. Such patterns occur at large urban city scales, the building scale and at the construction detail level. Alexander examines each scale, offering insights on how one can interpret and form connections to reach thoughtful analytical conclusions.

Christopher Alexander: The Production of Houses (1985) - In the fourth volume of Christopher Alexander's study towards a new attitude of design and planning, *The Production of Houses*, proposes that there exists two significant flaws within the system of housing production. Firstly, the system does not acknowledge that every individual is unique and must be able to express themselves in their modes of dwelling to maintain their human dignity. Secondly, the system does not recognize that every person fits within a distinct society where human relationships are the bonds that hold it together. In order to mend the system of housing production there must be fundamental changes that address these flaws. Alexander illustrates how the system of housing production can be adapted to address the above flaws through his Mexicali housing project in Mexico; it was designed and built by him along with the future families that would eventually inhabit the built homes.

Richard Sennett: Building and Dwelling: Ethics for the City (2018) - In this text, Sennett proposes a new way of Opening the City; this alternative approach establishes a healthy city as an open system, uniting the cité and the ville. Sennett defines the ville as the established built environment, and the cité as the character of life in a neighbourhood and the unique ways people inhabit it. "So what would you do?" This was the question that Jane Jacobs posed to Richard Sennett, while he was in the midst of developing his ideas surrounding the Open City. Sennett admired Jacobs views on the need to seek an

Figure 6. Mixed-use building with large Bangladesh flag on facade, Dhaka. By A. Halleran, 2024.

alternative urbanism that incorporates a city's lived complexities within its built environment. Sennett's Open City balances working within a system of top-down organisational development planning while also incorporating bottom-up local input to ensure that the voices of future inhabitants are heard.

Linda Tuhiwai Smith: Decolonizing Methodologies: Research and Indigenous Peoples (2021) - Throughout Linda Tuhiwai Smith's text *Decolonizing Methodologies: Research and Indigenous Peoples* she examines and critiques the traditional Western concept of research and calls for the decolonization of methodologies and a new agenda of Indigenous research. Tuhiwai Smith divides her analysis in two parts throughout the text. Firstly, she examines the history of Western research and critiques and highlights the colonial assumptions from which it is based. Then, the second section of her text explores and proposes a new approach for Indigenous research.

Witold Rybczynski et al.: How the Other Half Builds (1984) - *How the Other Half Builds* is an in-depth analysis on informal urban settlement and planning by Witold Rybczynski and Vikram Bhatt and their team of researchers as part of McGill University's minimum cost housing group. They completed site surveys on four informal housing settlements in Indore, India in June 1984. The results concluded three volumes of analysis exploring spaces, plots and the housing self-selection process. Detailed drawings depicting the efficient and dynamic daily uses of space in these settlements are provided, demonstrating their sophistication of evolving spatial functions. The authors argue that informal urban settlements must not be underestimated; they are architecturally valuable design spaces that provide valuable insights on the fundamentals of housing.

Bernard Rudofsky: Architecture without Architects (1964) - Throughout the text *Architecture without Architects*, architect, engineer and critic, Dr. Bernard Rudofsky examines communal architecture. He defines communal architecture as architecture that is not professionally drafted or 3D modelled in architectural offices, but instead, it is the spontaneous exercise of building by a community who acts through collective knowledge and shared cultural experience. Rudofsky highlights the importance of not dismissing this form of architecture as "primitive" ; rather, he feels it is important to recognize it as an art form that is a product of human intelligence founded in experiential knowledge.

Hassan Fathy: Architecture for the Poor (1969) - Egyptian architect Hassan Fathy explores a new approach to rural mass housing in Egypt throughout his text *Architecture for the Poor*. Fathy feels that high quality, socially and culturally appropriate housing for the poor can be achieved through the use of native materials and local craftsmanship. It is through his experimental large-scale village housing project in New Gourna, that he tests these theories; he discusses his findings throughout this text. Fathy reflects on the architectural and bureaucratic lessons learned during this project and suggests possible solutions for future projects.

Nabeel Hamdi: Housing without Houses: Participation, Flexibility, Enablement (1995) - The text *Housing without Houses: Participation, Flexibility, Enablement* by Nabeel Hamdi presents methods for housing production. Hamdi argues that efficient construction can only be achieved using methods which promote local action based upon incremental design tactics and improvisation. Throughout the chapter Looking, Listening, and Measuring, Hamdi discusses the importance of involving locals as he feels designing homes should be an exercise that seeks to listen and learn. Furthermore, Hamdi identifies the significance of knowing the actors involved in the design process and understanding their interests and priorities, so that future cooperation and conflict resolution can be efficiently achieved.

Figure 7. Site visit to Shonatola village. By R. van Poppel, 2024.

Defining the Problem

The most significant challenge that the Shonatola villagers face is environmental. Two to three times a year, the village experiences serious flooding which can last anywhere from three to ten days. When major community decisions must be made like during flooding periods, the male chief elders and community leaders collectively decide how the village will proceed. This traditional mode of governance where chief elders and community leaders serve as decision makers for the larger collective works well for the community and is a system they would like to preserve.

During times of extreme flooding, the community temporarily relocates to the children's school across the highway, where they take shelter on the upper floor and roof. After flooding, the community returns to the village and begins rebuilding homes most impacted by the flood. Homes which are constructed using bamboo, tin and mud, are most affected and require consistent rebuilding. Studying this community involves careful consideration of what the future of this peri-urban site will look like. As Sylhet city continues to expand, the fate of the village is inherently dependent upon the effects of the urban sprawl. Despite the significant and frequent challenges they face, the Shonatola village is a strong example of a collective whose strength lies within the power of their community.

The primary problem statement that this research will investigate is:

The quality of life and dwelling conditions of the Shonatola village community, living in a peri-urban settlement outside of Sylhet city, is under significant threat. The Shonatola villagers experience significant housing challenges, infrastructural barriers and economic insecurity due to climate-induced environmental distress and the impacts of Sylhet city's sprawling urban development on their way of life.

Theoretical Framework

"It matters what matters we use to think other matters with; it matters what stories we tell to tell other stories with; it matters what knots knot knots, what thoughts think thoughts, what descriptions describe descriptions, what ties tie ties. It matters what stories make worlds, what worlds make stories."

Donna Haraway, Staying with the Trouble, 2016

When conducting research, it is critical that one must acknowledge and assess their personal position to better understand their unconscious biases within the research. Context is everything. When one conducts research it is not being done in a vacuum. The lens that one uses to interpret what they read, what political media they consume, what buildings they study and what history they examine is crucial to the development of the stories that are told and the research that is produced. As an international student studying at Delft University of Technology, in the Netherlands, who is originally from Newfoundland, Canada, my own personal connection with Bangladesh and more specifically the Shonatola community is limited. I do not proclaim to understand the profound complexities of a culture that is so different from my own and which I have only had limited time to explore beyond the texts and media that I have consumed and the short 2.5 week study trip that our class had taken as part of this graduation study course. I hope, however, to continue to deepen my understanding of the challenges that the people of Bangladesh face and more specifically the Shonatola community, so that I may continue to work towards establishing a socio-culturally sensitive proposal that is situated in its location, culturally relevant and genuine.

A text which has been especially influential in how I will position myself within this research is the text *Decolonizing Methodologies: Research and Indigenous Peoples* by Linda Tuhiwai Smith. Tuhiwai Smith discusses the layered complexities and history of Western researchers studying Indigenous Peoples globally (2021). She identifies in the introduction that the term 'research' is deeply rooted in European imperialism and colonialism, stating that "The word itself, 'research', is probably one of the dirtiest words in the indigenous world's vocabulary"(2021). Research through imperial eyes, can and has, historically misrepresented Indigenous communities. As researchers return to the West, telling stories about their findings, they become accepted as universal truths, further disenfranchising the Indigenous Peoples and communities that were studied. It is crucial for Western researchers to be critical of the "gaze" of their research, especially when examining a culture that they are not a part of. Thus, this analysis aims to work towards unpacking the imperial and colonial influences that are inherently present, in an effort to call out its weaknesses in a genuine and transparent manner.

In an effort to expand upon my knowledge and to place my own research within the context of that which currently exists, it was important to gather a greater understanding of architects and theorists who have already examined similar themes to those which I hope to build upon in my analysis. This is illustrated in Figure 9, which depicts a graphic exploration of the key theorists, texts, concepts and built projects that I have used as a foundation from which this research will be built. My research will explore the intersection of the theories of critical regionalism, post-consensus participation and the system of housing production.

While researching topics surrounding participatory and collaborative community-centred design, I noticed that words which are frequently used to describe the role of the architect include - someone who "empowers" and "enables" communities to create positive change. But what does it
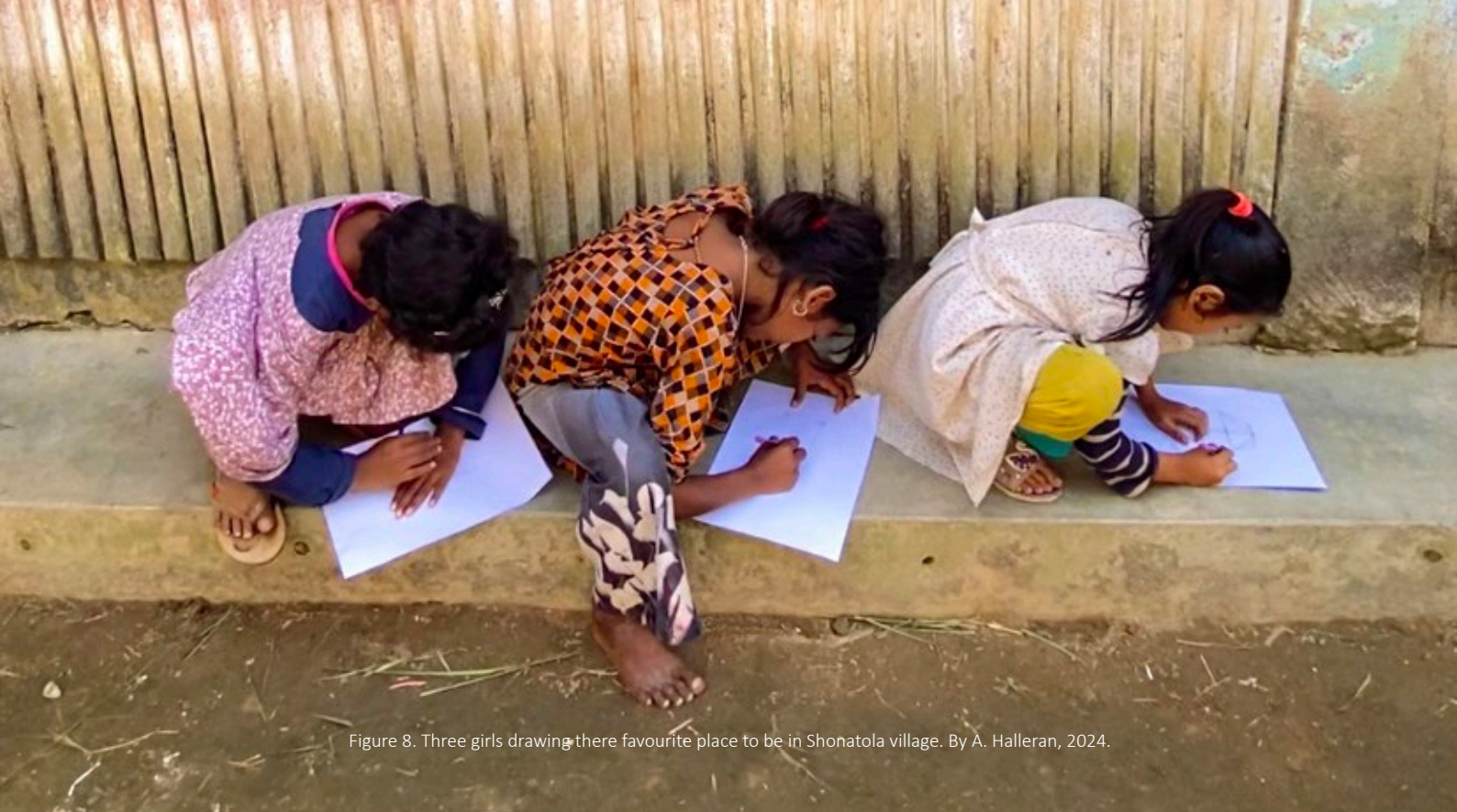
Figure 8. Three girls drawing there favourite place to be in Shonatola village. By A. Halleran, 2024.

mean to empower or enable a community? And does the concept of empowerment or enablement have to begin with a power imbalance which favours the outsider? As Donna Haraway has highlighted so eloquently in her text *Staying with the Trouble*, words matter (2016). Thus, it is important to think critically about how one describes their role as an architect in a design project. In an effort to be thoughtful about how this project will define its role within the community, I have looked to the practice of capacity-building. The United Nations defines capacity-building as "the process of developing and strengthening the skills, instincts, abilities, processes and resources that organisations and communities need to survive, adapt, and thrive in a fast-changing world" (United Nations, n.d.). Capacity-building originates from within a community and is sustained over time. It is not a list of conditions or practices to improve upon, that are enforced by an outsider and imposed upon a community. Objectives for capacity-building are expanded upon in the United Nations Sustainable Development Goal 17: Revitalising the Global Partnership for Sustainable Development (SDG). These include: "increasing technology and innovation in least developed countries and improving data collection and monitoring for the achievement of the SDGs themselves" (United Nations, n.d.). By exploring this research through a lens of capacity-building, the architect can then serve as a facilitator of community development, which is a key distinction and area of investigation that this research revolves around.

To ensure that the final proposal of this research project is socio-culturally considerate and genuinely rooted in the context and community of the Shonatola village, utilising past theorists' work that explore topics of the importance of regional and vernacular architectural practices is crucial. Kenneth Frampton's concept of critical regionalism is a key guiding force within the design approach for this research project. Similarly, to the work of Frampton, Amos Rapoport uses a very regional method to examine housing and local culture and customs throughout his work in *House Form and Culture* (1969). These notions of the importance of grounding architecture in its surroundings are also promoted by Christopher Alexander throughout his text *The Timeless Way of Building* where he feels that regional architecture that acknowledges its locality is necessary in order to reach a desirable spatial quality and atmosphere (1979). Thus, regional sensitivity in design has become a fundamental component of this research as is demonstrated in Figure 9, where one of the three pillars to theoretically position this analysis is based upon critical regionalism.

An additional theoretical approach that will be applied to achieving a genuine design proposal is the importance of collaborating with local communities on the design and construction of a project. This can be accomplished through the use of participatory design. Participatory design is an incredibly complex subject. This is highlighted through the work of Markus Miessen in his text *The Nightmare of Participation* (2010). Miessen proposes a new 'post-consensus model' for participatory design which this research will build upon. Examining Miessen's striking opposition to the standardised democratic model of participatory design is important, as it highlights the frequent trap of collaborative design methods which can overly idealise inclusion, advocacy and equality. In such projects, the architect glamorises focus group sessions and consultation meetings as tools to prove their commitment to the community, but as there is rarely any clear direction for next steps, outputs from these sessions often ultimately allow for the dismissal of community perspectives due to a lack of consensus. I have experienced this first hand while working on large public projects, attending focus group sessions that proved to be moments of great conflict. Ultimately, architects did not have the power to make meaningful changes based on community input as consultation meetings occurred too late in the design process. This was arguably the intention of the client, as consultation became more of an unpleasant box that needed to be checked, rather than a key moment to gain future building user design feedback. This analysis will introduce and challenge the factor of time in participatory design, and suggest that the architect move away from participatory design as solely fulfilled by consultation meetings that lead to architects giving empty promises to the community. This will be achieved by examining housing case studies that engage differently and at various times in a project with participatory community-driven development.

The final theory that forms the foundation of my exploration of participatory housing design is from Christopher Alexander's text *The Production of Houses*, where he questions the system of housing production through his Mexicali housing project in Mexico (1985). Within this text, Alexander identifies what he feels are the two greatest flaws within the system of housing production and then works to address them in Mexicali. The identified flaws are as follows:

1. The system must acknowledge that every individual is unique and thus, must allow for the expression of their uniqueness in order to maintain their human dignity.

2. The system must recognize that each individual fits within a social community where human connections are the bonds that maintain it.

An analysis of Mexicali demonstrates that through a collaborative systematic process and thoughtful spatial planning, a new strategy of housing design can be achieved by fundamentally questioning the structural process of housing production. The method that Alexander uses to address the first flaw is seen through the meaningful collaboration he completes throughout the entire design process with future homeowners. For example, in the chapter on "The Layout of Individual Houses" he works with future homeowners to design their unique home so that it meets the specific needs and desires of each individual family. To address the second flaw, Alexander applied his previous findings from his earlier volume of *A Pattern Language* where he developed strategies for the collective design of common land through clustering (Alexander, 1977; Alexander, 1985). Alexander emphasises that in order to achieve a successful collective common space in housing projects, the effort is an entirely human process (1985). He feels it is a practice of collaboration and community where "people come to know each other, work together, trust each other, and together make their world" (Alexander, 1985). These concepts, tested through Mexicali, are valuable and as such, this research will continue to explore the importance of designing dwellings that support individual personalization and appropriation to ensure that future inhabitants feel a strong ownership of their homes.
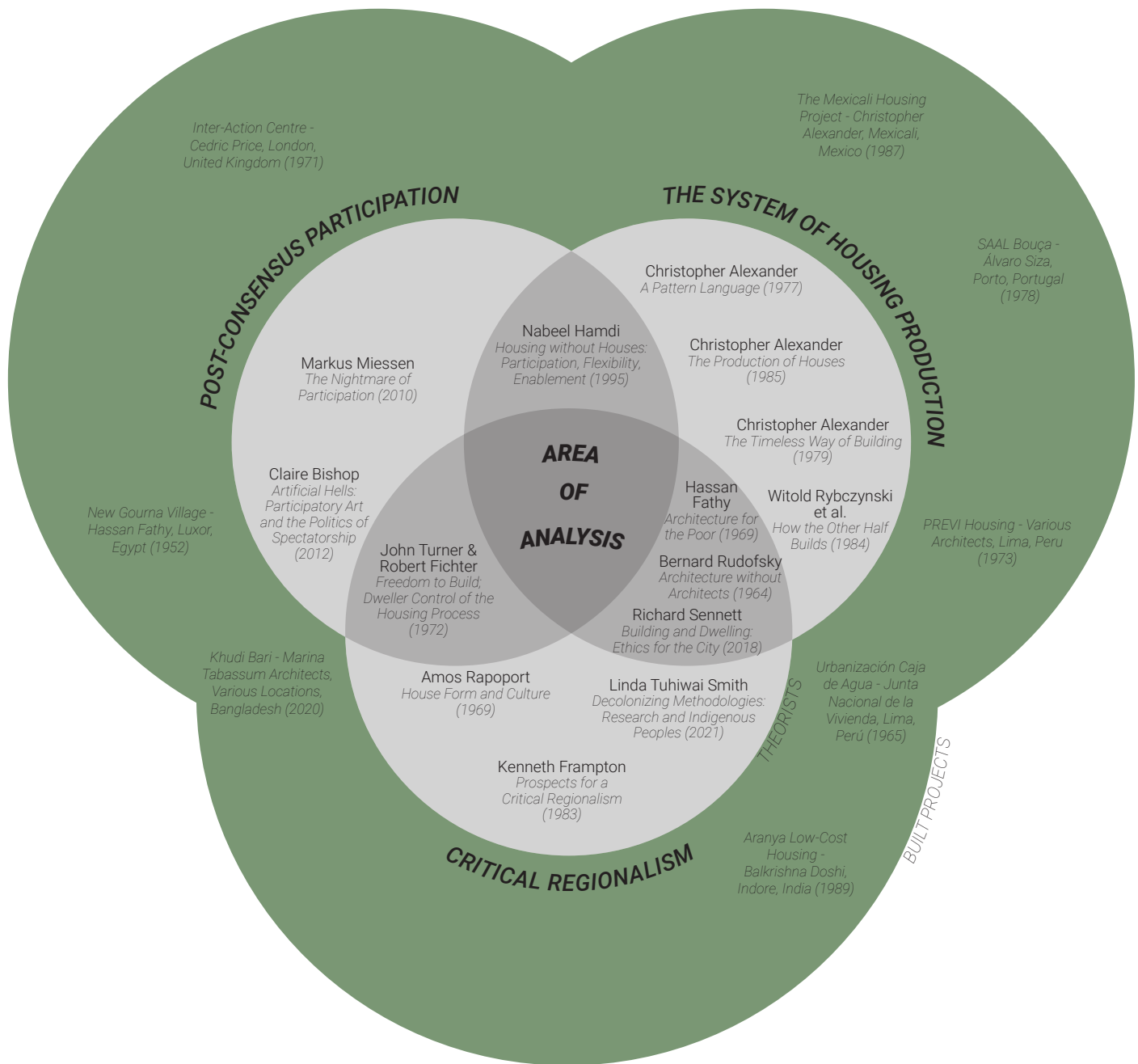
POST-CONSENSUS PARTICIPATION

THE SYSTEM OF HOUSING PRODUCTION

CRITICAL REGIONALISM

THEORISTS

BUILT PROJECTS

AREA OF ANALYSIS

Markus Miessen
The Nightmare of Participation (2010)

Nabeel Hamdi
Housing without Houses: Participation, Flexibility, Enablement (1995)

Christopher Alexander
A Pattern Language (1977)

Christopher Alexander
The Production of Houses (1985)

Christopher Alexander
The Timeless Way of Building (1979)

Claire Bishop
Artificial Hells: Participatory Art and the Politics of Spectatorship (2012)

Hassan Fathy
Architecture for the Poor (1969)

Witold Rybczynski et al.
How the Other Half Builds (1984)

John Turner & Robert Fichter
Freedom to Build; Dweller Control of the Housing Process (1972)

Bernard Rudofsky
Architecture without Architects (1964)

Richard Sennett
Building and Dwelling: Ethics for the City (2018)

Amos Rapoport
House Form and Culture (1969)

Linda Tuhiwai Smith
Decolonizing Methodologies: Research and Indigenous Peoples (2021)

Kenneth Frampton
Prospects for a Critical Regionalism (1983)

Inter-Action Centre - Cedric Price, London, United Kingdom (1971)

The Mexicali Housing Project - Christopher Alexander, Mexicali, Mexico (1987)

SAAL Bouça - Álvaro Siza, Porto, Portugal (1978)

New Gourna Village - Hassan Fathy, Luxor, Egypt (1952)

PREVI Housing - Various Architects, Lima, Peru (1973)

Khudi Bari - Marina Tabassum Architects, Various Locations, Bangladesh (2020)

Urbanización Caja de Agua - Junta Nacional de la Vivienda, Lima, Perú (1965)

Aranya Low-Cost Housing - Balkrishna Doshi, Indore, India (1989)

Figure 9. Theoretical framework. By A. Halleran, 2024.

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Another strong example of a project that demonstrates inhabitant appropriation of housing post-construction is seen through the exploratory Proyecto Experimental de Vivienda (PREVI) project in Lima, Peru by Peter Land in collaboration with 13 international architects and 13 Peruvian architects (Land, 2015). This experimental project led to the development of innovative low-rise, high-density housing solutions targeted towards low income families in Lima. Among the international architects to participate in this project was Charles Correa. In discussing the lessons learned from the PREVI housing project, Correa describes the value of incremental housing and the effects of architects taking a step back in the design process (Land, 2015). Correa emphasises the importance of the malleability of incremental housing, as it supports families ability to personalise their spaces, leading to the establishment of authentic vernacular housing, far more genuine and robust than what an architect can attempt to achieve. In this discussion, Correa states the following: "All the architect should do is set up basic ground rules...And then sit back and watch the changes. And *learn* from the changes that the families are making" (Land, 2015). This conclusion of the practicality of incremental housing in achieving culturally appropriate and situated housing will be significant in informing the approach to this design research project. Through thoughtful theoretical positioning, this research will expand upon the work of past theorists, investigating the intersection of three primary theories of interest - critical regionalism, post-consensus participation and the system of housing production.

Research Question

How can a *situated participatory housing design approach* be applied to *improve dwelling conditions* of the *Shonatola village community*?

Sub-Questions

- How can *architects act as facilitators* of design to improve *capacity-building* of the Shonatola community?

- How can we learn from *traditional ways of community organisation* to inform an inclusive *method of collaborative design*?

- How can we use the *timing and extent of community collaboration* to inform a situated method of participatory housing design?

- How can architects design dwellings to support future inhabitant's *individuality and spatial appropriation* to instil individual and collective ownership of their space(s)?

Goal

The primary goal of this research is to improve the quality of life and dwelling conditions of the Shonatola community living in a peri-urban settlement outside of Sylhet city by working towards advancing capacity-building to establish housing security, enhanced infrastructure systems, and economic stability.

Design Hypothesis

The ways in which the Shonatola community live, are under threat. Climate-induced distress and the ever growing impact of Sylhet city's sprawling urban development on the community's way of life has majorly affected their settlement and dwelling patterns. Therefore, establishing a contextually situated method of participatory housing design that incorporates community capacity-building and
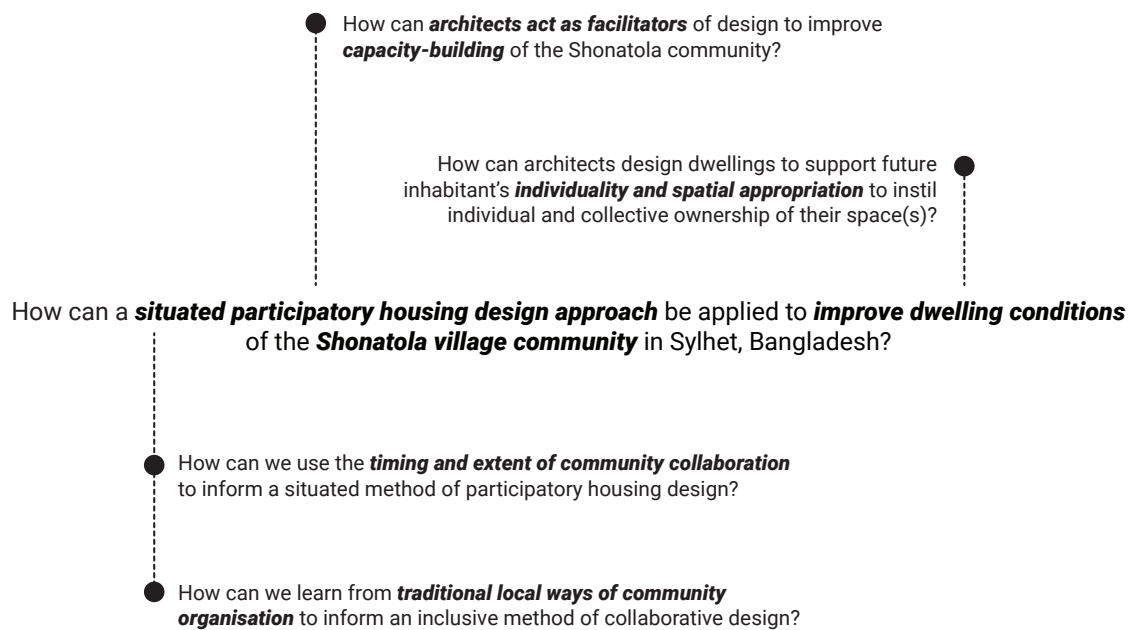
How can **architects act as facilitators** of design to improve **capacity-building** of the Shonatola community?

How can architects design dwellings to support future inhabitant's **individuality and spatial appropriation** to instil individual and collective ownership of their space(s)?

How can a **situated participatory housing design approach** be applied to **improve dwelling conditions** of the **Shonatola village community** in Sylhet, Bangladesh?

How can we use the **timing and extent of community collaboration** to inform a situated method of participatory housing design?

How can we learn from **traditional local ways of community organisation** to inform an inclusive method of collaborative design?

Figure 10. Research question. By A. Halleran, 2024.

traditional ways of community organisation, challenges the timing of community collaboration and supports future inhabitant's ability to spatially appropriate their space will enable a socio-culturally appropriate and collaborative housing development that better prepares the community for future environmentally distressing climate events.

While the subsequent approach will be best suited for the Shonatola community, as it will be focused on addressing their specific climate challenges and will learn from their traditional ways of community organisation, it is expected that the established the situated framework for socio-culturally appropriate participatory design can be modified and applied to other development projects that work with other marginalised communities globally who are facing similar challenges. As an effect, this will expand the significance of the current research by creating a framework which incorporates important criteria that are relevant to development projects with marginalised communities.

A three phase design approach to address the defined research question will be applied. Phase one will address infrastructural upgrades to the existing community, phase two will confront a reactive approach to in-situ housing improvements to the existing village and phase three will propose a proactive design approach to densify the Shonatola settlement by expanding west, beyond the current village limits. This results in three reactive and two proactive design schemes. The five housing design schemes proposed will address the needs of different housing conditions that exist in the Shonatola community. This project will provide a systematic method for development, by offering housing solutions which promote and uplift villagers within Shonatola by improving their current living conditions and supporting their ability to keep living on the land they have lived for generations, while also addressing the need for future expansion and densification of this peri-urban site. Each scheme intends to be appropriated and adapted based upon the needs of the inhabitants, which results in five designs that provide the community with a "Tool box for Appropriation". This concept can also be adapted and applied to other housing projects globally to address the needs of other communities who are experiencing similar housing issues.
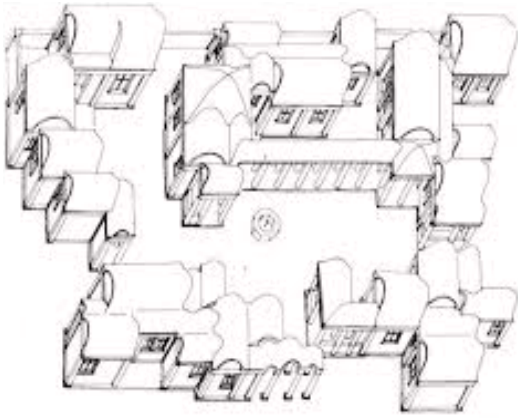
Mexicali
Christopher Alexander, Mexicali, Mexico

Figure 11.1. Mexicali drawing. From "The production of houses," by Alexander, C., 1985. Oxford University Press.

New Gourna Village
Hassan Fathy, Luxor, Egypt

Figure 11.2. Streets in New Gourna. From "Architecture for the Poor," by Fathy, H., 1969. University of Chicago Press.

Urbanización Caja de Agua
Junta Nacional de la Vivienda, Lima, Perú

Figure 11.3. Two Núcleo 2-type houses along the Independencia. From "DASH: Delft Architectural Studies on Housing," by Gyger, H., 2018. (https://journals.open.tudelft.nl/dash/article/view/5026).

***Incremental Housing Strategy***
Urbanouveau and SPARC, Pune, India

Figure 11.4. Pune in-situ incremental housing. From "ArchDaily," by Basulto, D., 2009. (https://www.archdaily.com/21465/incremental-housing-strategy-in-india-filipe-balestra-sara-goransson).

Jhenaidah Community Upgrading
Co.Creation.Architects, Jhenaidah, Bangladesh

Figure 11.5. Jhenaidah upgrading. From "BRAC Centre," by BRAC, 2020. (https://www.brac.net/program/of-dignity-and-dream-homes-transforming-a-slum-in-3-steps/).
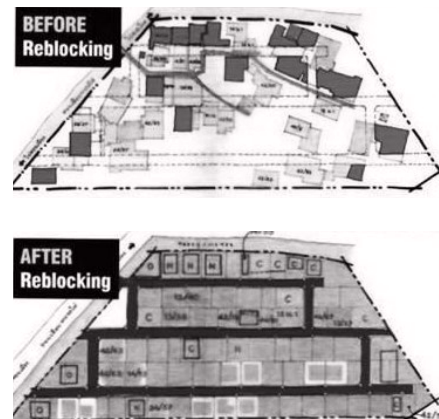
Baan Mankong (Secure Housing) Initiative
Community Organization Development Institute, Bangkok, Thailand

Figure 11.6. Reblock plans for Secure Housing. From "CODI," by Ministry of Social Development and Human Security, 2024. (https://www.codi.or.th/).

Aim

The aim of this research is four-fold: to acquire insights on how architects can act as facilitators of design to increase capacity-building of the Shonatola community, to gain a greater understanding of local ways of community organisation of the Shonatola people, to examine the effects that the timing of collaboration can have on participatory housing projects and to gather an in-depth understanding of the impacts of spatial appropriation on successful housing design.

Methods

This research study will utilise qualitative research methods to establish a systematic framework for socio-culturally appropriate participatory housing design to support future developments for the Shonatola community. During the fieldwork site visit to Dhaka and Sylhet, several methods of research analysis occurred. These include: semi-structured interviews with members of the Shonatola community and people who live in the wider context of Sylhet, as well as the development of a personal fieldwork diary of written notes from the trip, observational findings, sketching and collaboration with Shahjalal University of Science and Technology students and professors. Collaging community narratives from the interviews and workshops will serve as an important output for this analysis to gain an overview of what the community feels should be prioritized to improve their quality of life. To gain greater insight into the existing conditions of housing of the community, an investigation of their standard of housing and material commonly used will be explored. Furthermore, the qualitative methods to be implemented include an in-depth case study analysis examining housing projects around the world that engage differently with participatory community-driven development, including Urbanización Caja de Agua in Lima, New Gourna Village in Luxor, Mexicali housing project in Mexico, an in-situ incremental housing project in Pune, a community upgrading project in Jhenaidah and the Baan Mankong initiative in Bangkok. Furthermore, examination of the experimental PREVI project in Lima will also be crucial in informing how aspects of spatial appropriation can be utilised through housing design. Lastly, studying secondary sources including news articles, online texts, historical books and architectural theory texts is also critical to gain a greater holistic understanding of this research topic. Each of these methods will be utilised to inform the development of the final design research proposal to be presented in P5.

Research Scheme

A graphic illustrating the research scheme is depicted in Figure 12. The figure demonstrates how this analysis will be developed and the main methods to be utilised, which are dependent upon the research question and sub-questions posed.

Research Question

How can a ***situated participatory housing design approach*** be applied to
improve dwelling conditions of the ***Shonatola village community***?

Sub-Questions

1.

*How can **architects act as facilitators** of design to improve **capacity-building** of the Shonatola community?*

2.

*How can we learn from **traditional ways of community organisation** to inform an inclusive method of collaborative design?*

3.

*How can we use the **timing and extent of community collaboration** to inform a situated method of participatory housing design?*

4.

*How can architects design dwellings to support future inhabitant's **individuality and spatial appropriation** to instil individual and collective ownership of their space(s)?*

Goal

To improve the quality of life and dwelling conditions of the Shonatola community by working towards advancing capacity-building to establish housing security, enhanced infrastructure systems, and economic stability.

Aim

Acquire insights on how architects can act as facilitators of design to increase capacity-building of the Shonatola community.

To gain a greater understanding of local ways of community organisation of Shonatola villagers.

To examine the effects that the timing of collaboration can have on participatory housing projects.

To gather an in-depth understanding of the impacts of spatial appropriation on successful housing design.

Methods

Supporting Literature:
- *Defining the role of the architect as facilitator of design and "capacity-builder"*
- *Haraway - Staying with the Trouble*
- *Miesssen - The Nightmare of Participation, and the post-consensus model for participation*
- *Hamdi - Housing without Houses: Participation, Flexibility, Enablement*

Collaging Community Narratives
- *Site visit, observation, drawing, sketching, fieldwork diary, interviews, workshops*

Supporting Literature:
- *Frampton - Critical Regionalism*
- *Tuhiwai Smith - Decolonizing Methodologies: Research and Indigenous Peoples*
- *Rapoport - House Form and Culture*

Comparative case study analysis of housing projects that explore different temporal participation
- *Urbanización Caja de Agua - Junta Nacional de la Vivienda, Lima, Perú*
- *New Gourna Village - Hassan Fathy, Luxor, Egypt*
- *Mexicali - Christopher Alexander*
- *Incremental Housing Strategy - Urbanouveau and SPARC, Pune, India*
- *Jhenaidah Community Upgrading - Co.Creation.Architects, Jhenaidah, Bangladesh*
- *Baan Mankong (Secure Housing) Initiative - Community Organization Development Institute, Bangkok, Thailand*

Case study analysis of housing projects that examine spatial appropriation
- *PREVI experimental housing project - Peter Land and various other architects, Lima, Perú*

***Output:** Establish criteria for collaboration that is project and site specific*

***Output:** Establish criteria to achieve regional and socio-culturally appropriate housing design*

***Output:** Establish criteria to achieve optimal temporal participation of collaboration that is dependent on project type*

***Output:** Establish criteria to achieve individual and collective spatial strategies for appropriation*

Relevance

*A **situated framework** for socio-culturally appropriate participatory design.*

+

*A **Tool Box for Appropriation**: Step-by-step housing design options that are designed to be adapted and changed over time.*

Figure 12. Research Scheme. By A. Halleran, 2024.

Figure 13. Roof top garden space on top of Dhaka residential building. By A. Halleran, 2024.

The primary product of this graduation studio project is a step-by-step housing design toolbox to be used by the community to offer housing design solutions for the different site conditions that occur throughout the village. Creating a Toolbox for Appropriation will provide step-by-step housing design options that are designed to be adapted and changed over time by future self-help builders and the people living in the Shonatola community. This research will exemplify that collaboration in design does not have to happen at one particular moment in the design process in order for it to be a successful participatory design experience. This will be illustrated in the forthcoming analysis of three successful low-income housing projects that each take part in community participation during different moments throughout the design process.

Additionally, this research will develop a situated framework for socio-culturally appropriate participatory design. This alternative approach will be grounded in its location and acknowledge and address the common pitfalls of collaborative design. This inclusive framework will focus on how the Shonatola community can be supported to improve future housing developments. The framework will provide insights on how a development project like this should be phased to ensure that the village gradually develops with the community, over time. As such, this framework will learn from local ways of community organisation and building, leading to a proposal that supports and better prepares the community for future environmentally distressing events and the expansion of the nearby Sylhet city on their way of life.

Timeline

Figure 14 illustrates a schedule to ensure thorough development of this research and design project at different scales of analysis. Furthermore, an outline of draft deliverables for each of the five key milestones throughout this graduation project are listed below in Table 1 to inform a continuous progression of this project. Following this research timeline will ensure that thoughtful analysis is completed to ensure that the research questions posed are thoughtfully answered. From this analysis, an emerging framework for participatory housing design which learns from traditional ways of community organisation of the Shonatola community will be developed so that it may be implemented in the future to address the socio-cultural, economic and housing challenges that the community faces.

Time vs Scale of Analysis Gantt Chart

Housing Scale of Analysis	MSc 3					MSc 4				
	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
International Housing Case Studies	■		■	■	■		■	■		
Bangladesh Housing Analysis		■	■							
Sylhet Region Housing Analysis				■	■					
Settlement Patterns of the Shonatola Community			■	■		■	■	■		
Dwelling Analysis			■	■		■	■	■	■	■

Figure 14. Time vs Scale of Analysis Gantt Chart. By A. Halleran, 2024.

Figure 15. Woman hanging clothes to dry, Dhaka. By A. Halleran, 2024.

Definitions

Delta - "Deltas form as rivers empty their water and sediment into another body of water, such as an ocean, lake, or another river" (Evers, 2023).

Capacity-Building - "The process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt, and thrive in a fast-changing world" (United Nations, n.d.). Capacity-building originates from within a community and is sustained over time. The United Nations Sustainable Development Goal 17: Revitalising the Global Partnership for Sustainable Development, includes objectives for capacity-building such as, "increasing technology and innovation in least developed countries and improving data collection and monitoring for the achievement of the SDGs themselves" (United Nations, n.d.).

Sustainable Development Goals (SDG) - United Nations 17 Sustainable Development Goals proposed in 2015 to achieve sustainable development by 2030 (United Nations, n.d.).

Project Milestones

Milestone	Deliverable
P1 - Week 2.3: 27, 29 November, 2024	- Research Plan - Design Research Deliverables - Pilot Project
P2 - Week 2.9: 20-24 January, 2025	- Graduation Plan - Urban Draft / Master Plan, 1:1000 & 1:500 - Program - List of Requirements - Draft Design - Plans, Sections, Elevations, 1:200 - Physical Model
P3 - Week 3.9/3.10: April, 2025	- Interim Presentation - Plans, Elevations, Sections, 1:200 - Section of the Building, Plan and Section - Façade Fragment Details - Other Critical Details - Draft reflection
P4 - Week 4.4/4.6: May, 2025	- Formal Presentation - Site Plan 1:5000 & 1:1000 - Ground Floor Plan 1:500 - Plans, Elevations, Sections 1:200 & 1:100 - Section of the Building, Plan and Section, 1:50 - Façade Fragment Details - Other Critical Details - Theoretic and Thematic Supporting Research - Final Reflection
P5 - Week 4.9/5.1 June/July, 2025	Final Formal Presentation - Same as P4

Table 1. Project Milestones. By A. Halleran, 2024.

Figure 16. Residential building, Dhaka. By A. Halleran, 2024.

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