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Nest for the Future

Exploring housing design to improve the living conditions of impoverished children in flood-prone area of Sylhet city, Bangladesh

Research Plan of
*MSc 3/4 - Global Housing Architecture of
Transition in the Bangladesh Delta*

**GLOBAL
HOUSING**

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01. Introduction

Bangladesh is one of the most dynamic countries in South Asia. According to the World Bank, its annual GDP growth rate reached 7.1% in 2022, experiencing rapid urbanization and growth (World Bank, 2022). With an annual population growth rate of 1.7%, Bangladesh's urban population is growing even faster, and it is predicted that by 2025, more than 50% of the population will reside in urban areas (ESCAP, 2007). However, as more people migrate to cities, the capacity of urban areas has been exceeded, leading to the formation of slums

1-1. Slums are growing

Like other developing countries, rapid urbanization in Bangladesh is attributed to migration in search of employment. As finding jobs is a top priority for migrants, they continue to migrate to cities in search of hope despite poor living conditions, accelerating urbanization (Correa, 1989). Another factor is the climatic conditions of Bangladesh. Every year, floods create hundreds of thousands of climate migrants. In 2019, more than 4 million climate migrants were generated due to cyclones and floods, and this is expected to worsen, reaching up to 12 million in the near future (IDMC, 2021). A significant number of these migrants have moved to urban areas, accelerating urban migration (Rana et al, 2021).

This rapid influx of people into cities has led to the formation of slums, where many migrants find themselves in extremely poor living conditions. Despite this situation, the Bangladeshi government has underestimated the current state. When the slum population is estimated based on standard housing-related criteria used by the UN for the Millennium Development Goals (MDGs), approximately 13.34 million

people live in slums in Bangladesh. This is six times the figure announced by the government in 2014. The government's underestimation of this slum phenomenon has led to insufficient budget allocations, worsening the slum situation (Joseph et al, 2019).

1-2. Urban poverty and children

Children are the most vulnerable to poverty. As mentioned above, children who have migrated from rural to urban areas due to urbanization are more likely to experience problems related to poverty, especially when living in slum areas. While it is generally thought that the quality of life in cities is higher than in rural areas, paradoxically, the poorest 20% of children in urban areas live in worse conditions than their rural counterparts (UNICEF, 2018). This indicates how inequality in cities causes children, who should be the focus of urban planning, to be forgotten, leading them to suffer in dense environments and face health risks (Chandy/ UNICEF, 2018).

Thus, this research aims to explore the issues children face due to poverty and to examine the housing design that can improve these conditions. Through this, the focus is on improving the lives of impoverished children in Sylhet city.



Figure 2. Street view of slum in Dhaka
(Peter, 2015)

02. Problem Statement

*Around the world, children are more likely to live in poverty than adults.
They are also more vulnerable to its effects (UNICEF)*

Bangladesh is experiencing rapid urbanization due to migration driven by job opportunities and climate disasters. In 1974, the urban population was 8.8% of the total population, but by 2014, it had exceeded 30%. However, cities have been unable to accommodate the influx of people, resulting in 55% of the population living in urban slums. Dhaka has around 6,000 slum settlements, and in the Sylhet division, 50,000 people live in 1,412 slums (BBS, 2014). In these circumstances, many people suffer from poor living conditions in urban slums.

Sylhet is a large city located in northeastern Bangladesh and is the fifth-largest city in the country. Sylhet has a similar level of slum severity as Dhaka (Joseph et al, 2019). Additionally, 49.8% of the total working population in Sylhet city lives in slums. Residents in these areas live in dense areas with poor housing, suffer from food shortages, have low literacy rates, and are highly vulnerable to crime and delinquency. Due to poverty, they also face difficulties accessing basic infrastructure (Reza et al, 2019).

In this environment, children are the most vulnerable to poverty and its associated problems. This vulnerability is reflected in the high rates of child malnutrition in the Sylhet region. According to the 2014 UNICEF Bangladesh Nutrition Report, Sylhet had the highest rates of malnutrition and stunting, and the situation has worsened every year. Particularly, children from families that migrated from rural to urban areas due to rapid urbanization experience these poverty-related issues more severely while living in slum areas. While it is gener-

ally believed that the quality of life in cities is higher than in rural areas, the poorest 20% of children in urban areas have a worse quality of life than rural children. These children are often forgotten in urban planning and suffer from environmental and health risks (Chandy/ UNICEF, 2018).

According to Maslow's hierarchy of needs, basic needs such as food security and safety needs must be met before individuals can pursue higher-level needs, such as self-actualization (Maslow, 1943). However, due to the poverty, children are often deprived of even these essential requirements. Therefore, this study aims to explore ways to improve the lives of poor children in urban areas by presenting urgent issues faced by these children and proposing housing design as solutions.

2-1. Child malnutrition

Currently, two out of three children under the age of five in Bangladesh face food insecurity (UNICEF, 2024). As a result, these children suffer from severe malnutrition and stunted growth. Children in urban slums are considered the most vulnerable group, with 29% of girls and 37% of boys suffering from malnutrition and stunting and wasting rates exceeding 50% for both genders. While education and poverty alleviation are often mentioned as key solutions, existing child health programs have largely excluded urban areas compared to rural regions (Rahman et al, 2021). Particularly, Sylhet city, the study area, has the highest rates of child malnutrition and stunting in the country (UNICEF, 2014). Due to the severity of this issue, addressing food security for poor children



*Figure 3. Child in Bangladesh Slum
(UN Photo/Kibae Park.,2010)*

is an urgent priority.

2-2. Exposure of children to unsafe living conditions

Slums provide unstable living conditions with poor housing quality. As a result, many slum residents engage in the informal economy, participating in activities such as drug dealing, prostitution, human trafficking, and theft. Children are the most vulnerable to these crimes and, due to their susceptibility to peer pressure and environmental influences, are at risk of falling into criminal activities. Currently, children in slums are frequently exposed to such crimes. (Kamruzzaman et al, 2015). And such dangerous neighborhoods result in limiting children's outdoor physical activities, which negatively impacts their mental and physical well-being. (Hanapi et al, 2016) Therefore, child-centered housing design and neighborhoods are necessary to protect children from crime and ensure their health.

2-3. High density and unsanitary housing environment

Children living in slums experience poor housing conditions in high-density environments. These dense housing conditions negatively affect the physical and emotional well-being of the children, and they also face difficulties in their academic performance. The long-term effects of these conditions extend into adulthood (Solari et al, 2012). Additionally, unsanitary housing environments and unplanned waste disposal are particularly dangerous for children with weak immune systems. Such waste and improper sanitation contaminate water and the environment, causing severe harm to these vulnerable children (Reza et al , 2019). Therefore, it is crucial to improve these dense-

ly populated poor housing conditions and sanitation. Through housing design, improving children's health and providing them with equal opportunities is of utmost importance.

2-5. Vulnerability to Flooding

Slums where impoverished children live are more vulnerable to flooding, which results in poor sanitation and skin diseases. These issues arise from the structure of flood-prone houses and the surrounding environment (Braun et al, 2019). In Sylhet, as mentioned earlier, frequent floods exacerbate the situation when solid waste blocks drainage systems. (Pervin et al, 2019) Therefore, addressing the issue of flooding is essential to improve children's nutrition and overall well-being.

To resolve these issues, the lives of children and their care-givers must be addressed together. This is because care-givers are closely connected to the children's lives and have a significant impact on them.

According to the Van Leer Foundation, care-givers well-being is the most important factor in caregiving, and care-givers' mental illness has highly negative effects on children's mental and physical health. Therefore, in addressing children's issues, the well-being of caregivers must also be considered (Kumar et al., 2019).

By designing a child-friendly housing block that creates safe environment for children and meets the need of them, housing design can mitigate these problems. Therefore, this research will analyze the problems faced by impoverished children, exploring solutions that improve their living conditions through housing design.



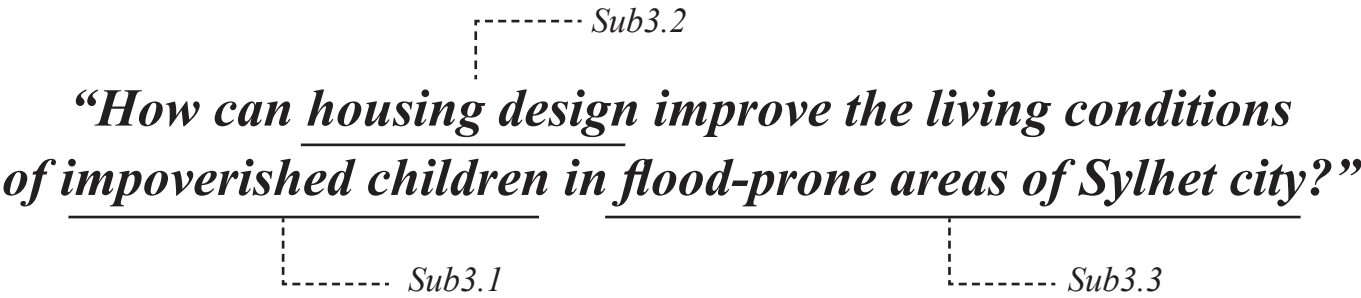
Figure 4. Children in a Bangladesh slum
(United Nations /Flickr, n.d.)



Figure 5. Bangladeshi child is drinking contaminated water in slum area
(WaterIntegrityBlog, n.d.)

03. Research Question

Main Question



Sub Question

3-1. Sub question about the lives of impoverished children and their caregivers

What are the most urgent challenges faced by poor children and their caregivers, what are the causes of these issues, and are there any successful cases of addressing them?

3-2. Sub question about housing design

What spatial issues do impoverished children and their care-giver face, and how can housing design contribute to child-friendly neighborhood?

How can housing design address food security and income issues?

3-3. Sub question about flood-resistant design

How can the housing design respond to flooding issue?

Children living in poverty have often been excluded from city planning, and as mentioned earlier, they are affected by various issues such as malnutrition, exposure to crime, and poor housing conditions (Chandy/UNICEF, 2018).

This research seeks to explore these fundamental questions to understand the problems children face, and how these issues can be improved. Additionally, by analyzing the spatial issues, the research will investigate how hous-

ing design can contribute to problem-solving. Lastly, this research will explore spatial strategies that meet the needs of caregivers who are closest to impoverished children and promote interactions among the children, with the aim of addressing their problems.

Through this process, the ultimate goal of the research is to improve the lives and health of these children and, in turn, enhance the lives of their families.



Figure 6. Slum life in Chattogram
(Jalal Uddin Rumi, 2019)

04. Hypothesis

This chapter will examine the hypotheses formulated to explore housing designs focused on improving the lives of impoverished children in Sylhet city.

4-1. Improving children's physiological needs will have a positive impact on their development.

According to Maslow's Hierarchy of Needs, human needs are hierarchical, and lower-level needs for safety and food security must be met before pursuing higher-level needs such as self-actualization (Maslow, 1943). However, poor urban children in Bangladesh are currently exposed to malnutrition and dangerous environment. Therefore, this hypothesis suggests that by improving these conditions through housing design, children's lower-level needs can be met, which will positively influence their development.

4-2. Improving life quality of caregivers will have a positive impact on the children.

This hypothesis predicts that if these care-givers are provided an improved living environment that allows them to work more easily at home, they would have more time to interact with their children, which is expected to positively impact the children's health and emotional well-being. Additionally, improving caregivers' well-being through better life quality is expected to enhance their mental health, which in turn is predicted to improve the physical and mental health of their children.

4-3. The more spaces there are for interaction between children and caregivers, the safer the neighborhood will become.

This hypothesis predicts that if caregivers can easily watch over their children while working or cooking, they will be able to pay more attention to the children's safety. Therefore, the more spaces that allow caregivers to interact with their children, the more safety is expected to improve.

4-4. Child-centered housing will revitalize the local community.

This hypothesis predicts that in child-centered housing design, interactions among neighbors through their children will increase, thereby revitalizing the community. It is expected that this will lead to active information sharing among care-givers, as well as child-centered community activities such as shared childcare. These interactions are expected to make the community safe and vibrant.

4-5. Urban farming is expected to have a positive impact on children's health.

This hypothesis suggests that housing design integrated with urban farming will alleviate malnutrition among impoverished urban children through food production and improve their mental health by enhancing the surrounding environment.

4-6. Flood-resistant house will have a positive impact on children's health conditions.

Slum houses are highly vulnerable to flooding, which leads to significant financial and sanitation-related damage during flood events (Braun et al, 2011). Additionally, the impoverished population suffers great losses during floods, worsening the nutritional status of children (Goudet et al, 2011). This hypothesis suggests that providing flood-resistant housing structures to these communities would mitigate the financial and sanitation-related damages caused by flooding, thereby positively impacting children's health.



Figure 7. Hope in the Slums
(Shumon Ahmed/ABC NEWS, 2011)

05. Goal / Aim

Main goal

The main goal of the ‘Nest for the Future’ project is to improve the quality of life of Impoverished children in Syhlet city.



Research Aim

To achieve this goal, the research aims of the project are:

- Understanding of the problems faced by children and caregivers*
- Insights on child-centered housing design and neighborhoods*
- Understanding of housing design that address food security issue*
- Understanding of housing design that respond to flood problems*
- A detailed design approach to offer practical solutions for poor children’s problem*

Through these research aims, the goal is to design child-centered housing that meets the needs of caregivers and improves the lives of children.



Figure 8. Child and care-giver
(UNICEF Bangladesh, n.d.)

06. Literature Review

This research aims to improve the living conditions of impoverished children through the housing design. Although many papers have addressed the lives of poor children and proposed solutions, there is a lack of research that provides spatial solutions to the problems. Furthermore, the serious issue of child malnutrition and safety in the slum area has often been addressed through policy and education, rather than more direct interventions. Therefore, this study seeks to address these issues more directly.

Various literature and cases were reviewed during the research planning phase. This allowed for identifying and analyzing the different issues faced by impoverished children. In this chapter, the literature reviewed during the overall process will be discussed.

4-1. Maslow's Hierarchy of Needs

Maslow's (1943) hierarchy of needs pyramid categorizes human needs into five levels and establishes their interrelationship. These five needs include physiological needs, safety needs, love and belonging needs, esteem needs, and self-actualization needs. Pursuit of higher-level needs only begins when the lower-level needs, such as physiological and safety needs, are satisfied. This theory highlights the importance of fulfilling children's basic deficiency needs to support their growth

Noltemeyer et al (2012) examined the impact of deficiencies in Maslow's hierarchy of needs on the academic abilities of children in the United States. The study found that children from low-income backgrounds often faced challenges in fulfilling their basic needs, which adversely affected their reading skills. This

literature emphasizes the importance of satisfying lower-level needs to support children's healthy development.

Nasir et al (2021) describe the severe challenges faced by impoverished children on the streets of Pakistan, who are deprived of basic deficiency needs as outlined in Maslow's hierarchy, thus living under constant threats to their survival. The study emphasizes the urgent need to address these fundamental needs to support children's growth. This literature highlights the critical importance of fulfilling the deficiency needs of impoverished children.

4-2. Rapid urbanization and the formation of slums

In the introduction of Correa's (1989) book, the causes of rapid urbanization in Mumbai and migration in the third world are discussed. The author notes that people migrate from rural areas to cities in search of work. Since housing quality is not their priority, they live in poor conditions for the sake of opportunity and hope. This literature provides insights into the reasons behind urbanization.

Rana et al (2021) discuss in their research the acceleration of urbanization in Bangladesh due to climate disasters. Each year, hundreds of thousands of climate refugees are created, and this number is expected to reach 12 million in the near future. The migration typically occurs from rural to urban areas, further accelerating urbanization.

4-3. The lives of impoverished children

- Nutrition problem

UNICEF's (2014) Bangladesh Nutrition Anal-

ysis Report discusses the nutritional status of Bangladeshi children. It reveals that Sylhet has the highest levels of child malnutrition and stunting in the country.

Fink et al (2014) compare in their paper the health conditions of children living in slum areas in developing countries worldwide. The authors conclude that poor urban children have no health advantage compared to rural children.

Fakir et al (2015) study malnutrition in urban slums in Bangladesh. The results show that child malnutrition is not significantly influenced by household assets but decreases as household income increases. Additionally, parental health education was found to improve children's nutritional status

Rahman et al (2021) study the nutritional status of children in Dhaka's slums. According to this literature, 29% of girls and 37% of boys in urban slums suffer from malnutrition and stunted growth, while the prevalence of wasting exceeds 50% for both genders. The study also notes that despite these issues, policies for poor urban children are lacking compared to those for rural areas..

- Safety issue

Ahmed et al (2014) study in their research the crime situation and its causes in Dhaka's informal settlements. These settlements are often breeding grounds for crime, including prostitution, drugs, and violent crimes. Over 90% of slum residents have experienced such violence, highlighting the severity of the situation.

Kamruzzaman et al (2014) investigate in their research the lives of children in Dhaka slums

and the causes of their involvement in crime. The study suggests that peer influence significantly affects them, and without environmental improvements, they may progress into adult crime.

- Living condition

Reza et al (2019) describe in their paper the slum conditions and sanitation issues in Sylhet, Bangladesh. The literature states that 50% of workers in Sylhet live in slums, facing extremely poor housing and sanitation. In these slums, solid waste is left on the streets, water is contaminated, and various diseases spread, highlighting the vulnerability of residents' health. In addition, the literature mentions that children with weakened immune systems are suffering from waterborne diseases due to these unsanitary conditions

Sherf-Ul-Alam et al. (2022) conducted a survey of 200 households in the slum area in Sylhet, revealing the current living conditions of Sylhet's slum dwellers and identifying spaces in need of improvement. The study reported issues such as overpopulation, drainage and sanitation problems, lack of access to safe drinking water, unhealthy living conditions, and challenges related to kitchen spaces for cooking. Furthermore, the study emphasized the need for raising family awareness for the education of children.

- Flooding Issue

Braun et al (2011) conducted a study on the vulnerability of Dhaka slums to flooding. The study noted that buildings in slums are constructed with flood-prone materials rather than concrete, making them highly susceptible to flood damage. It also highlighted issues such

as sanitation and malnutrition during floods. Through this literature, the vulnerability of slums to flooding was clearly recognized.

Goudet et al (2011) investigated the nutritional status of children in Dhaka slums during flood periods. The study found that due to a lack of flood response capabilities, children in slums experience higher rates of malnutrition during flood seasons.

Pervin et al (2019) analyzed the flooding situation in Sylhet and emphasized that, to address this issue, infrastructure improvements are needed along with proper waste management to prevent solid waste from blocking drainage systems.

4-4. Convention on the rights of the child

The United Nations (1989) reached an agreement on the universal rights of children through the Convention on the Rights of the Child, defining children and asserting their various rights. Among these, rights to food and safety are notably lacking for many children in Bangladesh, highlighting the need for improvements in these situations.

4-5. Interaction between caregiver and children

The study by Sharmin et al (2015) found that the majority of women in Dhaka slums work as housemaids, while 30% engage in handcraft work at home to take care of their households. In the case of handcraft work, this is seen as a way to manage both household chores and paid labor simultaneously, resulting in the overlap of home and workplace.

Kumar et al (2019) reported that children's mental health is closely linked to their care-givers' mental health. The study emphasized the importance of parental mental health, as mental illnesses in parents can lead to highly negative outcomes, including mental and physical health issues in their children. Additionally, the study presented solutions by highlighting cases from various countries where parental mental health was improved. This literature helped recognize the importance of not only children's well-being but also the well-being of caregivers.

Win et al (2022) conducted a study on the correlation between the labor of women in slums and child stunting. The study revealed that the more women engage in labor, the more negative the impact on child stunting. However, it also mentioned that when there were multiple caregivers, this negative impact was reduced, highlighting the need for childcare support.

The Van Leer Foundation (2023), through its publications, emphasizes the importance of caregiving and the well-being of caregivers, highlighting the need for action in this area. It also supports these points with various interviews and case studies. This demonstrates that addressing children's issues requires prioritizing the well-being of their parents.

4-6. Children and space

Cunningham et al (2007) proposed children-focused housing design guidelines. This literature discusses various strategies regarding private spaces for children and safe, interactive public space. Through this literature review, the direction of child-centered housing design could be understood.

Solari et al (2012) studied the impact of housing density on children and found that higher housing density negatively affects children's well-being and learning abilities. This highlights the need for quality living spaces designed for children.

Hanapi et al. (2016) investigated the impact of low-cost housing on children. The study found that affordable housing, often surrounded by dangerous environments and neighborhoods, restricts children's outdoor physical activities, which in turn hampers their emotional and physical health. The authors emphasized the need for accessible play spaces for children. This research highlights the importance of providing safe spaces and outdoor activity areas for children's well-being.

McCormick (2017) studied the positive effects of green spaces on children's development and health. The research noted that green spaces help reduce children's stress and promote emotional development. This highlights the importance of incorporating green spaces in architectural design for the well-being of children.

UNICEF (2020) space design guidelines for children provide principles to consider when designing spaces for them. This literature emphasizes the importance of children's participation in the design process. Through this, guidance on methodologies for child-centered space design is provided.

4-7. Neighborhood theory

In her book, Jane Jacobs (1961) introduced the concept of "eyes on the street," which emphasizes the importance of increasing communication among people in public spaces to foster a safer community. This concept illustrates the

connection between the design of space, safety, and social interaction, highlighting how active, well-observed streets contribute to a sense of security.

4-8. Food security for urban poor

Taylor (2021) discusses the potential of urban agriculture as a solution to address food shortages among the urban poor. This provided an opportunity to explore possible solutions for tackling food insecurity.

Chowdhury et al (2020) highlighted the importance of rooftop farming for securing food security in Dhaka. The study also examined the current status of rooftop farming and proposed ways to promote its expansion. This research helped identify the potential of applying farming solutions to enhance urban food security.

4-9. Flood-resisting building design

Pötz et al (2014) provide guidelines on architectural solutions and case studies for responding to flooding. These design approaches include various examples such as retaining walls, waterproofing, and floating structures. This helped establish a direction for designing flood-resistant housing.

07. Therotical Framework

The therotical framework of this study is structured around three main literature-based elements: Maslow’s hierarchy of needs, principles of child-centered housing design, and flood-resisting design strategies. Through this approach, the study aims to propose a housing design that addresses the basic needs of impoverished children, offering a safe and healthy environment.

7-1. Maslow’s hierarchy of needs

Maslow’s (1943) hierarchy of needs emphasizes that fulfilling lower-level needs—such as physiological needs, safety, and belonging—is essential for human development and self-actualization. Noltemeyer et al (2012) explored the impact of need fulfillment on the academic abilities of children in the United States, finding that low-income children suffer academically when their basic need is unmet, highlighting the importance of lower-level needs for children. Similarly, Nasir et al. (2021) discussed the challenges faced by impoverished urban children in Pakistan, who are unable to meet these lower-level needs. Currently, impoverished children in Sylhet also struggle to fulfill these basic needs due to malnutrition, safety concerns. This study, therefore, aims to create a housing environment that meets the foundational needs of impoverished children, including food security, based on Maslow’s theory.

7-2. Children-centered housing design

Cunningham et al (2007) suggested that child-friendly housing design should prioritize the safety of both private and public spaces. Solari et al (2011) identified the negative impact of high density housing on children’s learning, reinforcing the importance of private

space for children, as emphasized by Cunningham et al (2007). Hanapi et al (2016) found that unsafe surroundings in low-cost housing restrict children’s outdoor activities, adversely affecting their physical and emotional health. Moreover, McCormick (2017) emphasized that access to green spaces enhances children’s well-being, identifying this as a critical aspect of child-centered design. These elements align with Maslow’s (1943) hierarchy of needs, highlighting the need to improve children’s well-being through children-centered housing design.

7-3. Flood-resisting design strategies

This study explores designs that address Sylhet’s vulnerability to flooding. Braun et al (2011) studied the flood vulnerability of Dhaka slum dwellers and highlighted the need for flood-resistant building design as a solution to environmental problems. Additionally, Pötz et al (2014) presented examples and methods of various flood-resistant buildings and provided guidelines for them. Based on these literatures, this study aims to propose a flood-resilient housing design.

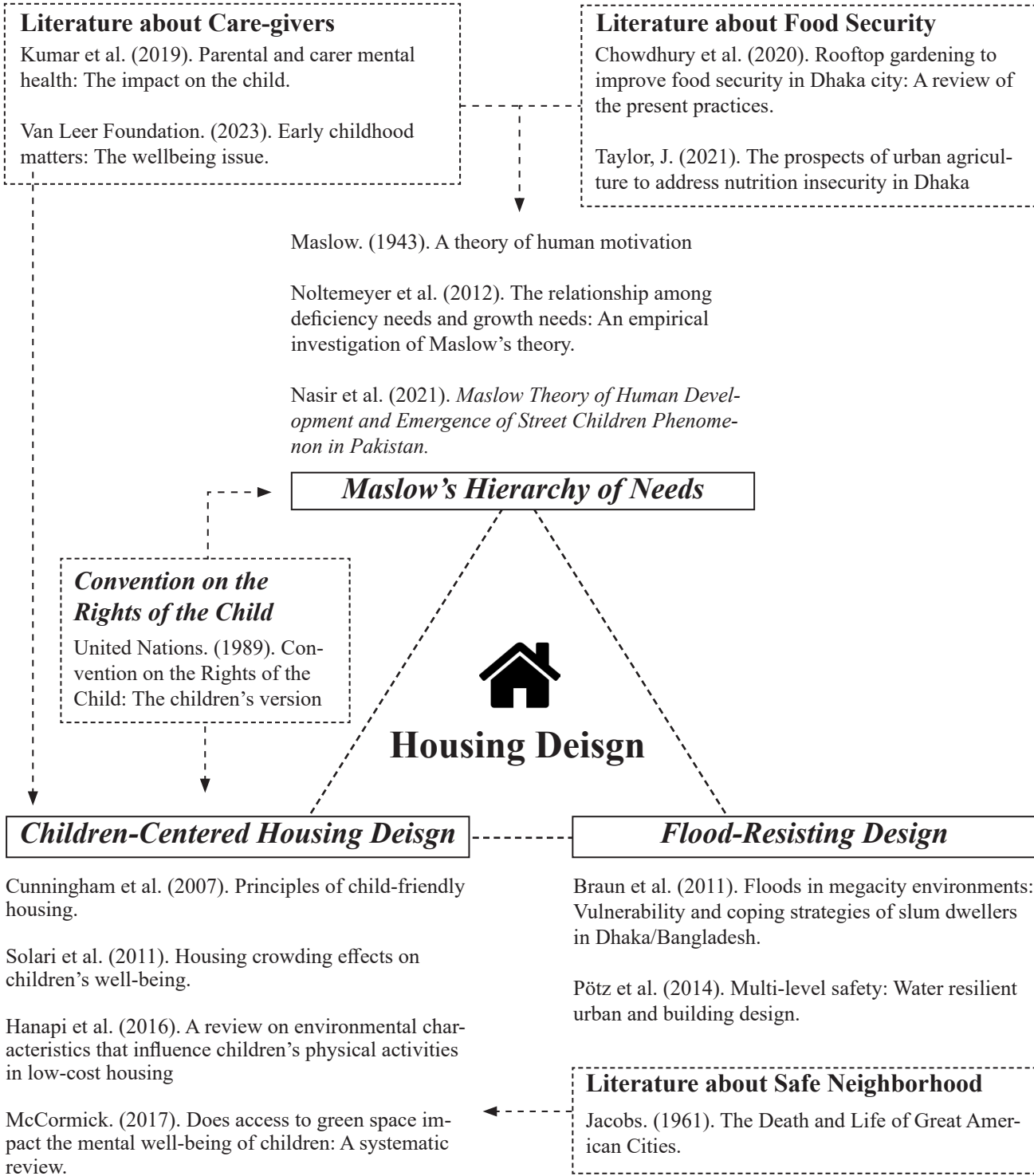
Improving the lives of impoverished urban children requires an integrated approach that considers all of these elements. Through these perspective, this study seeks to provide comprehensive solutions. Based on theoretical framework, the study aims to propose a housing design that enhances the lives of impoverished children in Sylhet, providing them better opportunities

Definition

Children: The children targeted in this study are defined as individuals under the age of 18, according to the Convention on the Rights of the Child. They are universally entitled to various rights, including well-being, safety, and education. (United Nation, 1989)

Maslow’s Hierarchy of Needs: The hierarchy of needs is a concept that divides human needs into five levels and arranges them hierarchically. These five needs include physiological needs, safety needs, love and belonging needs, esteem needs, and self-actualization needs. Pursuit of higher-level needs begins only when the lower-level needs are fulfilled (Maslow, 1943). According to this, street children, who cannot even satisfy basic physiological needs like hunger, are unable to pursue higher-level needs (Nasir et al, 2021).

Framework Diagram



08. Methodology

This research aims to improve the living condition of impoverished children and their care-givers by identifying and analyzing their issues, and finding solutions based on child-centered housing design. The most critical aspect of this research is understanding and analyzing the local context and culture to propose practical solutions. Therefore, the research will proceed in four detailed steps.

4-1. Data collection phase: interview, observation, literature review

The most important aspect of research is gaining a practical understanding of the situation. Since this research focuses on impoverished children, it will primarily observe and interview a sample of children between the ages of 5 and 17 from urban slum areas and their care-givers. With the help of local university students, a questionnaire will be created to survey families about their monthly income, health status, and the conditions of their housing that require improvement. In addition, in-depth interviews will be conducted with children and care-givers living in poverty to gather detailed insights into their housing experiences.

Through these methods, the research aims to gain a clearer understanding of the children’s experiences with housing. Additionally, photos and videos of the local housing environment will be collected to observe the sanitation, security, and social interactions within the community.

Literature review is one of the most effective ways to provide objective evidence. In this phase, documents published will be compared with the problems identified through fieldwork. Additional information will also be gathered, alongside academic papers and theories related

to potential solutions. This will facilitate an objective understanding of the problem and enable the exploration of spatial theories.

4-2. Data analysis: digitalizing, analyzing

Data analysis will be based on the information collected in the first phase. The housing situation in the research area will be digitized to facilitate architectural analysis. Survey data will be charted to identify the issues faced by impoverished children. At the same time, the analysis will consider the solutions identified during the literature review.

4-3. Case studies

The case study phase is intended to validate the findings of the previous phase and explore practical solutions. This phase will involve analyzing actual cases, assessing their effectiveness. The case study will focus on three main themes.

The first will be case studies of housing designed around children and their care-givers. These studies will explore how child-friendly housing is designed and how these spatial configurations can contribute to the well-being of impoverished children in Sylhet city.

The second theme focuses on solutions to food security issue. Through this case study, successful examples of addressing food security issue in urban slum areas will be researched, as well as cases where these solutions have been integrated with building design. The aim is to explore how such solutions can be incorporated into housing design.

The third theme is housing design that responds to flooding issues. Through research on

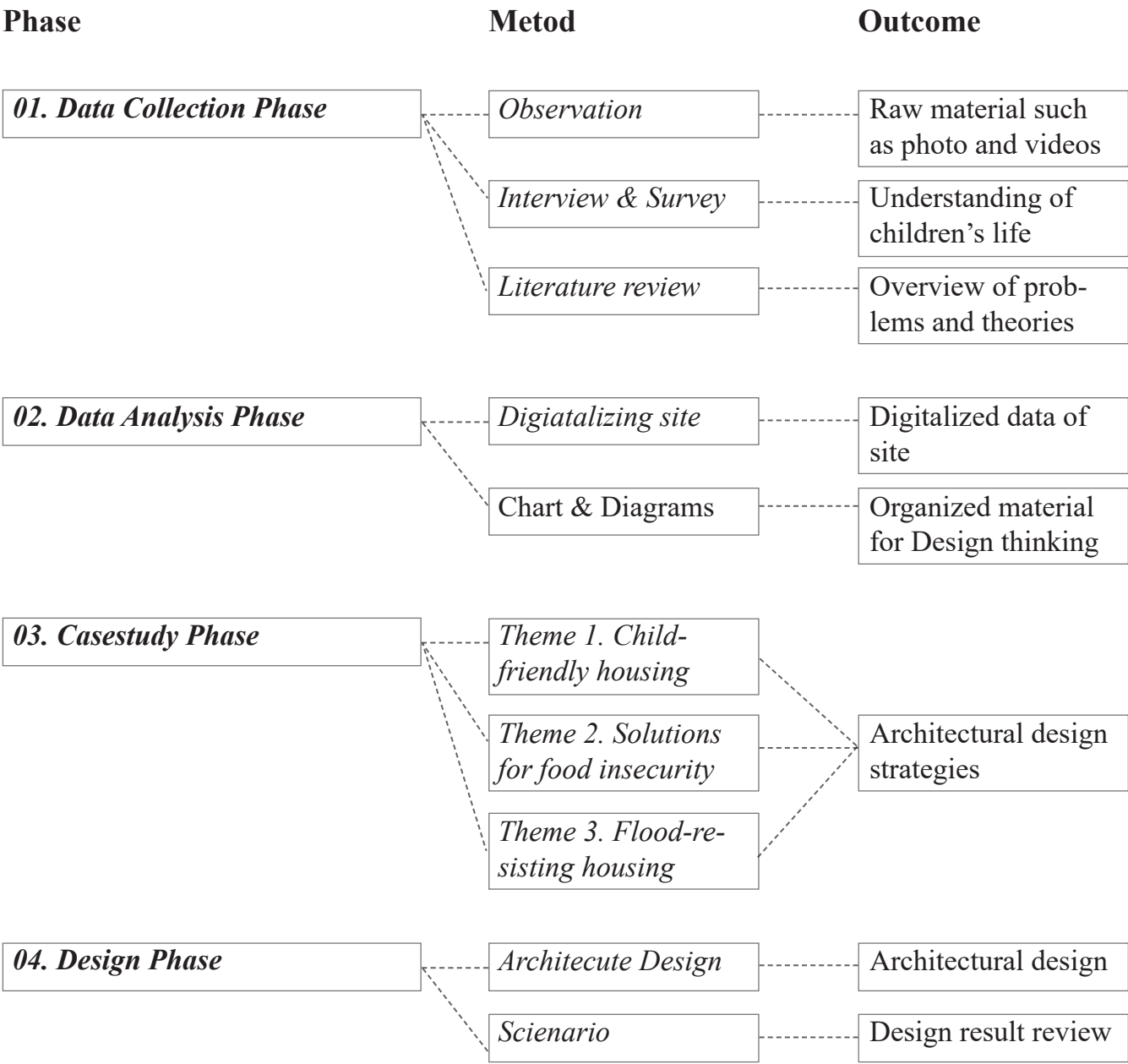
various housing design strategies that address flooding, this study will explore ways to prevent impoverished children from experiencing a range of health problems caused by floods.

4-4. Design Phase

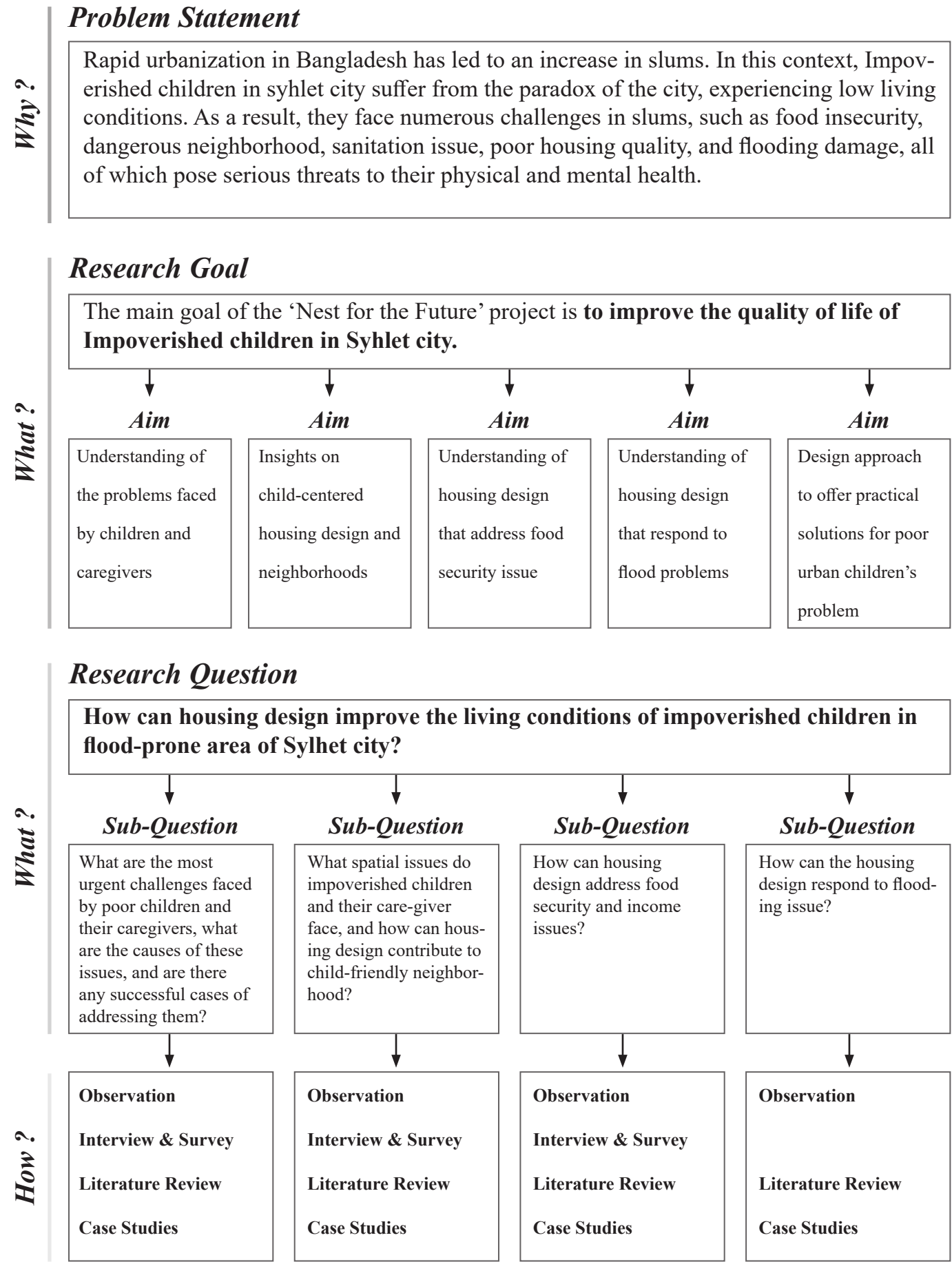
Based on the directions established through the

processes, the design phase will commence. In this process, scenarios based on the interviews with local children will be developed to strengthen the foundation of the design. The final output will present a design solution that improve the living condition of poor children and their care-givers in a practical way.

Methodolgy Diagram



09. Research Scheme



10. Relevance

Many people believe that urban children enjoy a higher quality of life than their rural counterparts. Paradoxically, impoverished urban children often face more severe living conditions and lower standards of living than rural children. Bangladesh has recently experienced rapid urbanization, with increasing numbers of families migrating from rural areas to cities. As a result, many poor urban children end up living in slums, where they are among the most vulnerable, directly affected by the harsh realities of slum life. These challenges not only impact their childhood but also limit their future opportunities as they grow older.

While many studies have addressed these problems from various perspectives, there has been little discussion about solutions, especially architectural ones. Additionally, most research has focused on Dhaka’s slums, even though cities like Sylhet face equally severe slum issues. Consequently, children in Sylhet’s slums suffer from dangerous living conditions, which have been largely overlooked.

This study prioritizes an architectural approach to solving the problems faced by urban poor children, focusing specifically on Sylhet city, to address the challenges of children living in non-capital city slums. Through the housing design research, the study aims to improve the overall well-being and living conditions of impoverished urban children, while ultimately providing better opportunities for their families. The goal of the research is to meet the need of children and create child-friendly neighborhoods through new housing design.



Figure 9. Children playing Cricket (Peter, 2015).

11. Reference

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Figure 10. Flooding in Dhaka slum
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11. Image Reference

Figure 1. Bangladeshi children on the streets

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Figure 2. Street view of slum in Dhaka

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Figure 3. Child in Bangladesh Slum

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Figure 9. Children playing Cricket

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Figure 10. Flooding in Dhaka slum

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