Improving Life in Urban Vernacular Settlements: An Assessment of Living Conditions in Resettlement Housing in Bangladesh

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Abstract

Urban slums or informal vernacular settlements are a common occurrence in most Asian cities. Governments are constantly trying to improve them by various means including eviction. In Bangladesh, a significant number of people are evicted from urban slums annually, yet only a few have the opportunity to secure alternative shelter. To address this issue, various resettlement projects have recently been initiated nationwide to help displaced people. However, despite the national and international policies mandating the resettlement of evicted individuals, implementation of them is insufficient. Moreover, the limited integration of re-settlers into planning and implementation processes often fails to improve living conditions. In resettlement areas, these are influenced by several micro-level factors, such as tenure patterns, income-expenditure ratios, dwelling quality, settlement locations, health and hygiene conditions, and the physical environment. They collectively determine the extent to which resettlement outcomes improve or decline. In this context, this study examines the living conditions of the Mandartola resettlement housing project in Bangladesh and assesses the impact of these factors.

The literature review examines the factors that affect slum resettlements, associated challenges, and determinants of living conditions. It examines these through a case study. Within it, data is collected through a questionnaire survey and a focus group discussion. A comparative analysis determines the significance of the factors. Findings are triangulated through qualitative data from a focus group discussion.

Findings reveal a lack of attention to critical factors in the Mandartola project. In conclusion, it proposes guidelines to address them and improve the effectiveness of the resettlement process.

Keywords: Living conditions, micro-level factors, Resettlement housing, Gopalganj, Bangladesh.

Introduction

Urban slums or urban vernacular settlements are quite common in the Asian cities. Related to these, resettlement is a global phenomenon, often driven by urban development projects, socio-political upheavals, or even natural disasters. In recent years, development-induced displacement and resettlement have significantly increased due to factors such as rapid urban expansion, population growth, and large-scale infrastructure projects.

The term resettlement is frequently used in the context of internal displacement and is often interchangeably referred to as relocation or rehabilitation. Terminski (2013) illustrates resettlement by focusing on the adaption to the new environment and considers 'resettlement' as the process by which individuals or groups, whether voluntarily or involuntarily, relocate from their original settlements to new areas, where they adapt to the biophysical, social, and administrative systems of the new environment to establish new patterns of life. Thus, resettlement can be understood as a pre-planned process of physical relocation coupled with comprehensive social and economic support mechanisms. This process involves not only relocating displaced individuals or communities but also implementing measures to restore their livelihoods, facilities, and social structures in the new location, ensuring their adaptation and long-term well-being.

Vanclay (2017) emphasizes the social dimensions of resettlement, describing it as a planned process that includes compensation for lost assets and resources, along with support for livelihood restoration, the re-establishment of social networks, and the improvement of community functioning and essential public services. Governments at both local and national levels undertake resettlement initiatives for various reasons, such as clearing land for redevelopments, providing safer living conditions, improving living standards, creating livelihood opportunities, or enabling people to return home after disasters or conflicts (Terminski, 2013; Robinson, 2003).

However, displacement often begins with eviction, which has profound consequences for affected people. For many urban poor, livelihoods depend on informal sector employment and economic networks that extend beyond their immediate communities. According to Koenig (2009), relocation disrupts these networks, resulting in job losses, reduced clientele, declining real incomes, and increased living expenses. Moreover, resettlement severs social networks, hindering access to community-based mutual assistance and disconnecting individuals from neighbors who remain in their original locations (Koenig, 2014). Such disruptions often lead to impoverishment risks, including loss of livelihoods, social networks, and access to essential services (Patel &Mandhyan, 2014; Patel et al., 2015; Vanclay, 2017; Foishal et al., 2023).

Kapse, Pofale & Mathur (2012) point out that according to human rights laws, authorities are obliged to provide relocated individuals with new sites that include basic infrastructure to minimize disruptions to their livelihoods. In Bangladesh, however, evictions and displacements are widespread, and policies aimed at resettling affected populations are often poorly implemented. Resettlement initiatives rarely address the housing needs, cultural norms, or lifestyles of displaced individuals. As a result, urban areas in Bangladesh, particularly cities such as Dhaka, Chittagong, Khulna, and Rajshahi face an influx of impoverished and landless individuals seeking livelihood opportunities. Many of these people, unable to afford proper housing, end up residing in slums or, in extreme cases, living a nomadic existence without shelter. Engaged in low-wage jobs that fail to meet the basic needs, they often construct unauthorized shelters on government or private land, abandoned areas, or along highways, railways, and industrial zones, leading to the rapid expansion of slums in and around urban centers.

Hence, slum eviction is a common occurrence in Bangladesh, driven largely by tenure insecurity in informal settlements, especially in inner-city areas where land is highly valuable. Between 1996 and 2004 for example, approximately 115 slums were forcefully evicted nationwide, displacing nearly 300,000 people. Wadud (2012) reports that in Dhaka alone, at least 60,000 individuals were displaced from 27 slums between 2006 and 2008. As Ahmed (2007) says, despite policies against eviction without resettlement, these are often ignored, and resettlement projects frequently fail to meet the needs of the urban poor, perpetuating cycles of

displacement and vulnerability. In fact, the end result is that people resettled fail to acquire any improvements in their standards of living.

In resettlement areas, living conditions are influenced by several micro-level factors, such as tenure patterns, income-expenditure ratios, dwelling quality, settlement locations, health and hygiene conditions, and the physical environment, which collectively determine the extent to which resettlement outcomes improve or decline.

In this context, this study investigates the multifaceted impact and significance of micro-level factors on living conditions, specifically within the context of resettlement housing. It examines the intricate interplay between various micro-level factors and their effects on living conditions. It focuses on the Mandartola resettlement project in Gopalganj, Bangladesh and scrutinizes these factors with the aim of comprehensively understanding their role in shaping the quality of life for resettled populations.

Its objectives are:

1. To identify and conceptualize the micro-level factors that influence living conditions in resettlement housing.
2. To evaluate the current living conditions of the resettlers and compare them to their previous settlement experiences, focusing on specific factors and their associated attributes.
3. To generate valuable insights that can inform policy-making and urban planning initiatives in order to enhance the well-being of resettled communities.

Theoretical Framework

Living Conditions and Quality of Life in Resettlement Housing

Improving quality of life is a central focus of sustainable development, with living conditions playing a critical role in determining overall life satisfaction, particularly within the housing domain. Living conditions refer to the various factors and circumstances that influence people's ways of life, encompassing essentials such as shelter, food, clothing, safety, and access to clean water. These conditions are intrinsically linked to the concept of quality of life, which reflects an individual's health, comfort, and ability to engage in or enjoy activities of life. As a result, living conditions directly affect an individual's overall well-being, shaping both their daily experiences and broader life outcomes.

According to Rapoport (1969), housing is not only a physical structure but also a socio-cultural process shaped by human needs and values. Similarly, Tipple (2000) and Turner (1976) argue that housing quality is a key determinant of well-being, directly influencing health, productivity, and overall life satisfaction. Quality of life in housing studies often reflects both objective indicators—such as infrastructure and services—and subjective experiences, including security, dignity, and community (Zainal et al., 2012; Zhang, Zhang, & Hudson, 2018). This suggests that assessing living conditions in resettlement projects requires a multi-dimensional approach that captures environmental, social, economic, and physical aspects simultaneously. However, assessing living conditions, especially for the low-income people, is a complex process due to the absence of a fixed framework. Economic conditions heavily influence living standards, as poverty is inversely related to the quality of living conditions. Furthermore, the factors shaping living conditions are interconnected, with socio-cultural contexts adding more complexity. The sustainable livelihood framework, commonly used for assessing informal settlements and low-cost housing, emphasizes access to livelihood assets (DFID, 1999), focusing on poverty reduction and income generation as key strategies.

Tenure Security as a Foundation for Housing Rights

Secure tenure forms the cornerstone of housing rights, shaping the degree of stability, investment, and dignity experienced by resettled people. The UN-Habitat (2011) conceptualization of housing rights emphasizes security of tenure as a prerequisite for adequate housing. According to Payne (2002), tenure security increases the willingness of households to invest in housing improvements, while Durand-Lasserve and Selod (2009) show its strong

correlation with reduced poverty risks. In resettlement contexts, tenure stability not only protects against displacement but also strengthens social cohesion and enhances opportunities for economic integration (Bashar, 2022). However, as Bredenoord and van Lindert (2010) caution, tenure security alone is insufficient if resettlement is poorly located or lacks supporting infrastructure. Thus, tenure is best understood as a foundation upon which the right to housing—and by extension, improved living conditions—can be realized.

Moreover, secure tenure and land rights not only boost a person's confidence to invest in his/her dwellings but also contribute to poverty reduction, thereby elevating overall living conditions. However, while land tenure security holds substantial potential to improve the living standards of the poor, it is inadequate on its own to drive comprehensive upgrades. The location of resettlement land is critical, as it influences household income and expenditure. Resettlement sites situated far from urban centers and essential services, such as markets, hospitals, and schools, lead to increased commuting costs, which elevate monthly household expenses and constrain investments in housing improvements. Furthermore, the urban poor, who often depend on the informal sector and their social networks for livelihoods, face reduced income opportunities or even unemployment when relocated far from their original communities. Moreover, the costs associated with utilities and services further lower the income-to-expenditure ratio, diminishing the motivation to invest in better housing conditions.

Livelihoods, Income, and Economic Dimensions of Resettlement

It is well known that economic factors, including income, expenditure, and access to livelihood opportunities are central determinants of living conditions in resettlement housing (Foishal et al., 2023; Cherunya et al., 2021). In fact, the income-expenditure ratio of a household affects its ability to afford housing costs, utilities, and daily necessities, as well as to invest in housing improvements. Social networks and collective actions within the community, however, can offset some of these economic constraints, allowing the residents to generate additional income through shared initiatives (Parvin et al., 2023). This highlights the interdependence of economic resilience with both social cohesion and housing adequacy. According to DFID (1999), livelihoods are multi-dimensional, encompassing human, social, physical, financial, and natural capital; strengthening any of these components can contribute to improved living conditions.

Dwelling Unit Conditions and Housing Adequacy

Moreover, the physical characteristics of dwellings significantly shape the daily experiences of the residents and their overall satisfaction (Le, Ta, & Dang, 2016; Ortiz, Itard & Bluyssen, 2020). The physical condition of housing units is a critical dimension of living standards, encompassing structural integrity, space adequacy, access to services, and environmental quality. Adequate unit size, functional spatial organization, structural durability, and adaptability are all essential for comfort, privacy, and safety. Flexible layouts allow households to adjust their living spaces in response to family growth or changing socio-cultural needs. According to Le, Ta, and Dang (2016), housing adequacy should be evaluated not only in terms of shelter but also with reference to indicators of comfort, safety, and habitability.

In this regard, Turner (1976) emphasized housing as a "verb," suggesting that flexibility and the ability of households to modify their dwellings are crucial for long-term sustainability. Dwelling adequacy thus directly influences health, satisfaction, and the capacity for social reproduction within resettled communities.

Spatial Location and Accessibility

The location of resettlement has profound implications for both economic opportunities and social integration. According to Olthuis et al. (2015), the spatial dimension of slum upgrading and resettlement is often overlooked, yet a location determines access to employment, education, markets, and services. Ajibade (2019) similarly notes that forced relocations to peripheral areas often exacerbate inequalities by isolating communities from livelihood opportunities and urban amenities. In contexts like Bangladesh, where informal

livelihoods rely heavily on proximity to central markets and social networks, peripheral resettlement sites increase household expenditures and reduce adaptive capacities (Foishal et al., 2023). Hence, spatial accessibility is inseparable from both tenure and livelihood security.

Health, Hygiene and Public Well-Being

Health and hygiene conditions within resettlement communities directly affect overall living conditions and life satisfaction. According to Zaqout et al. (2020), access to safe sanitation and waste management creates not only health benefits but also employment opportunities within low-income communities. Ortiz, Itard, and Bluyssen (2020) emphasize that housing retrofitting and environmental design strongly influence indoor environmental quality, with implications for respiratory health and comfort. Inadequate sanitation, contaminated water, and poor drainage systems increase vulnerability to disease outbreaks in resettlement settlements (Gaisie, Poku-Boansi, & Adarkwa, 2018). Thus, the health and hygiene dimension is both an outcome and determinant of resettlement sustainability, requiring integration with spatial planning and infrastructure provision.

Settlement Environment and Social Cohesion

Beyond individual housing units, the broader settlement environment—including open spaces, community facilities, and social infrastructure—shapes the collective quality of life of the residents. As Amin (2002) argues, the urban environment must be understood as a space of diversity and social encounter, where public amenities foster inclusion and social cohesion. Environmental sustainability is also critical: In this connection, Njeri, Munala, and Letema (2023) show that upgraded informal settlements with greener designs and improved waste management outperform others in long-term sustainability metrics. In resettlement contexts, the provision of communal facilities, safe play areas, and inclusive neighborhood planning enhances social capital while mitigating environmental stressors (Shrivastava & Tanchangya, 2015). The settlement environment therefore constitutes an integrative dimension linking physical infrastructure with social well-being.

Interrelationship among the Factors of Living Conditions

The conceptual diagram (Figure 01) illustrates the interrelationships among the six key factors that shape the living conditions in resettlement housing: tenure security, income expenditure ratio, dwelling conditions, settlement location, health and hygiene, and housing environment of the settlement. These factors are not isolated but rather form a dynamic and interdependent system. Tenure security acts as a foundation for housing rights, enabling households to invest in their dwellings and reinforcing social stability. Economic resilience is closely tied to both tenure and location, as secure land rights and proximity to employment opportunities enhance the ability of the residents to sustain livelihoods and improve housing.

Dwelling conditions directly influence health and hygiene by determining access to adequate space, sanitation and safety, while also reflecting the economic resources households can mobilize. The location of resettlement sites shapes residents' access to jobs, services, and amenities, thereby affecting both economic well-being and social interaction. Health and hygiene infrastructure is intrinsically connected to the physical quality of dwellings and the broader environmental context, influencing public health outcomes. Finally, the settlement environment, including social networks and ecological quality fosters collective action and social cohesion, which in turn support economic activities and reinforce tenure security.

Taken together, the figure below demonstrates that improvements in one factor can generate positive ripple effects across others, whereas deficiencies in any dimension may undermine the overall quality of life in resettlement housing.

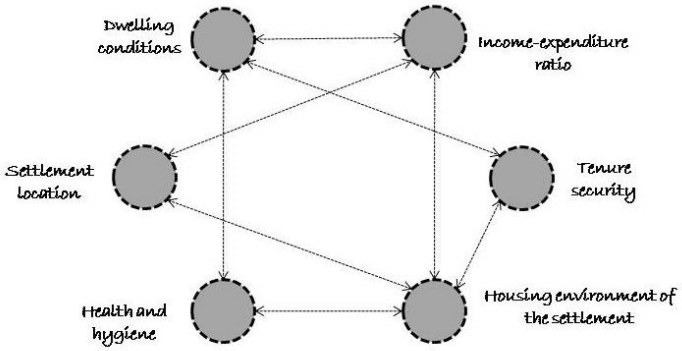

Fig. 1: Interrelationship among the factors of living conditions
Source: Author

Literature Review

Resettlement, slum clearance, and their implications for living conditions have been the focus of extensive scholarship globally and in Bangladesh. However, a comprehensive framework that integrates housing, livelihoods, services, and social well-being for urban vernacular contexts like Mandartola remains under-developed. Globally, resettlement is shown to create multidimensional disruptions when planning excludes livelihoods. For example, Nikuze et al. (2019) examine the impacts of urban redevelopment-induced resettlement projects, applying the sustainable livelihood framework to reveal that many resettled individuals experience significant adverse effects on their physical, financial, social, and human livelihood assets due to inadequately planned resettlement processes. Similarly, Streimikiene (2015) examines the relationship between quality of life and housing, identifying three key factors that influence living conditions: housing quality, the quality of the housing environment, and housing cost burdens. He points out that housing quality encompasses aspects such as overcrowding rates, which reflect the availability of sufficient living spaces relative to household size, age, and gender.

Indeed, it also includes the presence or absence of basic sanitary facilities and amenities for personal hygiene, as deficiencies in these areas can significantly compromise health and dignity. Moreover, Streimikiene (2015) shows that inadequate natural lighting, where dwellings are perceived as too dark, is considered a critical determinant of housing quality. The quality of the housing environment is shaped by external factors, such as crime, violence, or vandalism in and around the area, as well as environmental issues like noise, pollution, grime, or other disturbances. According to Streimikiene (2015), housing cost burdens include the financial obligations associated with monthly rent or mortgage payments, utility costs (water, gas, electricity, and heating), housing taxes, compulsory insurance, and regular maintenance and repair expenses. This model is designed to assess general housing conditions rather than being specifically tailored for resettlement cases or the informal housing sector.

In contrast, Nyametso (2012) explores the impact of land tenure security on living conditions of resettled slum dwellers in Ghana, highlighting its significant role in enhancing access to housing and improving both living and environmental standards. However, resettlers continue to face these challenges as they struggle to adapt to their new housing arrangements. In this regard, Foishal et al. (2023) analyze the coping strategies employed by the resettlers to improve the living conditions and restore livelihoods in the same case. They reveal that income reduction, resulting from inadequate resettlement, exacerbates living conditions and motivates the resettlers to seek alternative means of restoring their livelihoods. Moreover, insecure tenure discourages investment in housing improvements.

Similarly, Boadi et al. (2023) investigate the impact of resettlement on families affected by mining-related displacement in Ghana, emphasizing the significant role of resettlement quality which primarily refers to the ability of resettlement initiatives to enhance the physical,

social, and economic conditions of displaced individuals or communities in improving the overall quality of life. This involves not just providing housing but also ensuring access to essential services, infrastructure, and livelihood opportunities, while minimizing adverse effects like social disintegration or financial strain.

In this regard, Gulyani and Bassett (2010) propose a model known as the 'Living Condition Diamond' to understand the dynamics of living conditions within the informal sector. Their model presents a theoretical framework consisting of four interrelated factors as follows.

(i) tenure,
(ii) infrastructure,
(iii) unit, and
(iv) neighborhood and location.

It is noteworthy that their model encompasses a range of attributes within these factors. Tenure refers to the types of tenure arrangements, such as home ownership or tenancy agreements. Infrastructure encompasses household access to essential services, including water supply, electricity, drainage, sewerage, toilets, garbage collection, street lighting, telecommunication, and public transportation. The unit factor considers the physical quality of housing, such as building materials and the number of persons per room. Finally, the neighborhood and the location address the availability of public amenities near the settlement, such as schools and clinics, as well as the overall accessibility of the area. They reveal that living conditions depend largely on these factors, with changes in one factor directly influencing the others. For example, secure tenure can motivate residents to invest in housing quality improvements, while a favorable location ensures easy access to services and infrastructure, thereby enhancing living conditions.

At the same time, Perera (2014) shows that social relationships within the community, which provide mutual support and foster solidarity, also contribute to the overall living conditions. Secondly, household monthly income directly influences living conditions. Higher income levels encourage individuals to invest in housing and improve their living conditions. The income-expenditure ratio is a key determinant of housing quality. For instance, higher spending on housing, services, and utilities can limit investment in other aspects of living conditions. In a given country, opportunities for income generation can accelerate improvements in living conditions. Lastly, while the 'Living Condition Diamond' model was originally proposed for the informal settlements, it does not fully account for the complexities of forced displacement, which is often crisis-prone and brings significant socio-economic and cultural disruptions to affected individuals.

Adding to these arguments, Robinson (2003) demonstrates that displacements induced by development projects (DIDR) dismantle existing production systems, disrupt social networks, lead to impoverishment, threaten cultural identity, and increase the risk of epidemics and health problems. In this connection, The Cities Alliance sensibly chose to measure progress on the basis of two criteria as follows.

(i) The proportion of people with access to improved sanitation; and
(ii) The proportion of people with access to secure tenure (Gilbert, 2007). I

In contrast, Mukhija (2001) identifies four physical attributes, such as location of slums, layout of slums, land use in slum-pockets and the size of property lots, all of which have direct influence in the success of upgrading slums. However, Kim, Pagliara & Preston (2005) argue that, transport is an important factor in residential decision-making and that there could be substantial benefits from transport and housing policies that reduce the spatial mismatches between housing, jobs and other activities. There are some common characteristics and, in most cases, the urban poor settlements are characterized by inadequate housing conditions; deficient urban services (water supply, sanitation, drainage, solid waste disposal, and roads and footpaths); unsanitary and dehumanizing living conditions; extremely high densities (of both

people and dwellings); and, frequently, long travel distances to job opportunities (Rahman, 2012).

It is noteworthy that within Bangladesh, research highlights both parallels and contextual specificities. For example, Shah Mahmood and Islam (2019) show how involuntary resettlement in Dhaka's fringe areas disrupts livelihoods, social ties, and service access, thereby lowering quality of life. Rahman et al. (2025), analyzing the Ashrayan-2 resettlement project, argue that failures arise from weak livelihood integration and limited participatory planning. Meanwhile, Parvin, Mostafa, and Syangadan (2023) find that resilient housing upgrading in informal settlements of Bangladesh and Nepal requires designs adaptive to environmental vulnerabilities, a concern especially relevant for deltaic contexts. Recent work by Hossain (2025) extends the debate to middle-income communities in Khulna, where the struggle to access affordable housing reflects structural challenges in urban housing markets.

His findings underscore that affordability issues cut across income groups, reinforcing the need to situate resettlement debates within wider urban housing dynamics. Other Bangladesh-specific studies focus on the dynamic interplay between housing and livelihoods. Foishal et al. (2023) show how resettlers in Gopalganj alter and transform housing to restore livelihoods, illustrating that physical modifications often serve as economic strategies. These insights resonate with Turner's (1976) "housing as process" argument, but they also expose the limits imposed by restrictive tenure arrangements. Together, such findings reveal that housing cannot be isolated from broader socio-economic processes.

Despite these contributions, a significant gap persists. Much of the global literature emphasizes displacement from development projects or informal settlement upgrading, while Bangladeshi research largely focuses on Dhaka or large-scale government housing programs. Little attention has been given to smaller-scale, peri-urban resettlement projects like Mandartola, where tenure security is provided through ownership documents but modification rights are restricted, where dwellings are durable but climatically inadequate, and where peripheral locations hinder livelihoods and access to services.

This study initially adopts the Living Condition Diamond model proposed by Gulyani and Bassett (2010) to identify key factors and their associated attributes for analyzing the current living conditions in the Gopalganj Resettlement Project. However, due to the limitations of their model, particularly in its application to resettlement contexts, this study has modified and contextualized the model based on the previous discussion and the revised model has been applied to the selected case.

Firstly, this model is its exclusion of socio-economic aspects of living conditions. In the informal sector, social capital plays a crucial role in both livelihoods and living conditions. Many residents of urban slums or impoverished areas rely on informal employment and economic networks to sustain their livelihoods and manage their daily lives (Koenig, 2009). Social networks and relationships play a crucial role in the survival of individuals in informal settlements, serving as valuable assets. Disruption of these social networks can limit access to informal sector employment, leading to a decline in individual per capita income. Thus, while the "*Living Conditions Diamond*" (Gulyani & Bassett, 2010) provides a robust starting point, there remains a need to extend the framework by incorporating livelihood resilience (DFID, 1999), social capital, and participatory processes to fully capture the complexities of resettlement housing in Bangladesh.

Basis of the Research

Based on the above discussion, a total of 24 attributes were chosen to assess the living conditions (Table 1). These attributes have been systematically categorized based on their interrelationships and similarities and subsequently classified into six micro level factors. This led to the development of an analytical framework comprising six key factors that significantly influence the living conditions in resettlement housing. These factors include tenure patterns, income-expenditure ratios, dwelling unit conditions, settlement location, health and hygiene conditions, and the housing environment of the settlement. Variations in land ownership rights, leasing arrangements, and property regulations can profoundly impact the long-term viability

of resettlement communities. Moreover, income-expenditure ratios exert a significant influence on the economic well-being of resettled populations, affecting their ability to afford basic necessities and participate in local markets. Dwelling conditions within resettlement housing units also emerge as critical determinants of quality of life. Factors such as housing quality, structural integrity, and access to essential amenities profoundly impact residents' comfort, safety, and overall satisfaction. Health and hygiene conditions within resettlement areas significantly impact residents' well-being and quality of life. Access to clean water, sanitation facilities, and healthcare services is essential for determining public health outcomes and mitigating the risk of disease outbreaks and environmental hazards.

The physical housing environment, including factors such as air and water quality, green spaces, and disaster resilience, significantly influence residents' overall health and environmental well-being. Furthermore, settlement locations play a crucial role in shaping social cohesion, access to employment opportunities, and integration within the broader urban fabric.

Despite the recognition of the importance of these factors, there remains a notable research gap in comprehensively understanding their impact and significance on the living conditions within resettlement housing.

Table 1: Factors and Associated Attributes
Source: Author

Extracted micro level factors	Attributes under the recommended factors	Types of attributes
Tenure ship pattern	• Tenure security • Social relationship • Social asset	Social attributes
Income-expenditure ratio	• Housing expenditure • Service and utility cost • Income generating opportunity	Economic attributes
Dwelling unit conditions	• Dwelling unit size • Freedom of dwelling unit extension • Spatial flexibility • Physical condition of dwelling unit • Climatic comfort	Housing Unit related attributes
Location of the settlement	• Job location • Availability of public transport • Market nearby • School nearby • Hospital nearby	Location related attributes
Health and hygiene conditions	• Sanitation system • Water supply • Drinking water supply • Drainage	Health and hygiene related attributes
Housing environment of the settlement	• Utility • Public Amenities • Safety • Noise and pollution	Environment-related attributes

Research Methodology

Approach of the research

This study adopts a case study approach, focusing on the Mandartola resettlement housing project in Gopalganj, Bangladesh. The case study method was selected because it allows for an in-depth exploration of complex housing and livelihood issues within a specific socio-spatial context (Yin, 2018). Mandartola was chosen due to its unique status as a government-initiated resettlement project that relocated slum dwellers to a peripheral site with uniform housing provision.

Research Design and Sampling

The study employed a quantitative comparative descriptive design, complemented by qualitative methods. The target population consisted of all households resettled in Mandartola. To ensure representation of diverse socio-economic and demographic groups, a stratified random sampling technique was used. Respondents were stratified based on gender, age, and household income groups. From this population, 104 respondents were selected, consisting of 44 males and 60 females, aged between 18 and 70 years. These diverse characteristics highlight the complexity of their experiences and the importance of the stratified random sampling approach in capturing varied perspectives. The general characteristics of the sample are detailed in the Table 2. In addition to the survey, a Focus Group Discussion (FGD) was conducted to capture richer qualitative insights. The FGD included 10 participants (5 males and 5 females), representing different age groups and occupations. The session was conducted in the classroom of the community-led school within the Mandartola resettlement housing in August 2023, lasted approximately 90 minutes, and was facilitated by the research team with prior informed consent from the participants.

Data Collection

Data collection relied on a structured close-ended questionnaire designed around six key factors of living conditions: tenure, income-expenditure ratio, dwelling condition, location, health and hygiene, and settlement environment. To capture perceptions of these factors, a five-point Likert scale was employed, where respondents rated each attribute as very poor, poor, moderate, good, or very good. This instrument also included an item on overall satisfaction with resettlement.

The questionnaire was administered face-to-face in August–September 2023, ensuring inclusivity for respondents with low literacy levels. To triangulate the survey results, the FGD explored residents' experiences in more detail, focusing on changes in livelihood opportunities, housing adaptability, and access to services compared to pre-relocation conditions.

Data Analysis

Quantitative data from the survey were analyzed using SPSS. Descriptive statistics were used to summarize respondents' demographic and socio-economic characteristics, while cross-tabulations helped identify variations in perceptions across subgroups. The comparative aspect was emphasized by contrasting current living conditions in Mandartola with respondents' recollections of their previous settlement environments. The qualitative data from the FGD were integrated with survey findings to provide context and strengthen validity. This mixed-method triangulation enhanced reliability and offered a nuanced understanding of the experiences of the resettlers.

The Case Study

The case study area, Mandartola Resettlement Housing is located in Gopalganj, a district under the Dhaka Division of Bangladesh. This settlement houses individuals displaced from a slum in Gopalganj Sadar, the district's main town, where 1,935 people from 387 households had lived for over 35 years (Mostafa, 2015). The land they occupied was owned by the district administration. Although they lacked formal land titles, the slum dwellers, with support from the UNDP-led Urban Partnerships for Poverty Reduction (UPPR) project, had developed basic infrastructure such as latrines, tube wells, and drainage systems (Juhasz & Rahman, 2013). Despite the impermanence of their housing materials, the settlement offered sufficient space for each household and was conveniently located near the city centre, services, and amenities. The proximity to markets enabled many residents to earn their livelihood by selling goods, vegetables, or assisting vendors, while women often worked as domestic helpers for affluent households nearby. The community also enjoyed strong social networks and close proximity to relatives, which fostered social and economic capital by easing job searches and facilitating mutual aid during crises.

However, this community was uprooted on October 21, 2009, when the district administration announced that the slum would be evicted the following day in the name of aesthetic improvement and infrastructure development. The next morning, demolition workers began destroying houses, latrines, tube wells, drains, and streets, rendering 387 households and 1,935 individuals homeless (Mostafa, 2015). This sudden eviction not only displaced people but also dismantled the infrastructure developed over a decade through the UPPR project in a single day (Figure: 02). Many residents lost their physical assets, social networks, jobs, and access to services, with some forced to return to their villages, while others relocated to nearby slums by themselves. A few households constructed temporary shelters using salvaged materials on streets or nearby locations. On November 9, 2009, the UNDP and UPPR issued an official statement expressing concern over the legitimacy of the eviction and called for district administration support for the affected community. Following negotiations, the government, through the Ministry of Land, allocated 4.16 acres of land on a 99-year lease to the Gopalganj Pourashava in June 2010 to resettle the displaced households (Juhasz & Rahman, 2013). However, the resettlement site was located approximately 10 kilometers from the city centre, posing new challenges for the affected community (Figure 03)

Fig. 2: Eviction of Gopalganj slum, 2009
Source: Mostafa, 2015.

Fig. 3: Present and previous locations
Source: Google Earth

By 2014, five years after the eviction, only 138 households were resettled in Mandartola Resettlement Housing, as documented in the official beneficiary list. Each resettled household was provided a written document of ownership of dwelling units with a 35 square meter housing unit comprising one bedroom, one living/dining room, one kitchen, one toilet, and an open veranda. The housing blocks were designed to accommodate two households each and were constructed on one foot raised concrete platforms with brick walls and corrugated iron (CI) sheet roofing (Figure 4). However, essential utility services such as drinking water supply,

electricity, and other infrastructure were not yet operational, leaving residents without access to these basic amenities. To adapt their living spaces to better suit their daily needs, residents often repurposed the provided indoor kitchen into storage areas or additional bedrooms. Many households also extended their units by building outdoor kitchens and storage spaces using temporary materials like thatch, bamboo, and wood, aligning the structures with their lifestyle and practical requirements (Foishal et al., 2023).

Fig. 4: Building block having two household units
Source: Author,2014

Table 2: General Characteristics of the Sample
Source: The survey

Gender		Age		Income in BDT		Occupation		Education		Number of Family Members	
Respondents group	Percentage	Respondents group	Percentage	Respondents group	Percentage	Respondents group	Percentage	Respondents group	Percentage	Respondents group	Percentage
Male	42.31%	18-25	9.61%	5000-10000	49.0 %	Begging	1.92%	PSC or Below	74.0 %	1	5.8%
Female	57.69%	26-30	22.11 %	10000-150000	37.5 %	Small Business	25.96 %	JSC	22.1 %	2	12.5 %
	100 %	31-35	14.42 %	15000-20000	11.5 %	Day Laborer	9.61%	SSC	3.8%	3	11.5 %
		36-40	13.46 %	20000-25000	1.9%	Handicraft	7.69%	HSC	0%	4	20.2 %
		41-45	16.35 %		100%	House Keeper	2.88%		100%	5	20.2 %

		46 - 50	4.81%			Housewife	29.82 %			6	13.5 %
		51 - 55	3.87%			Packet Maker	12.5			7	13.5 %
		56 - 60	2.88%			Retired	1.92%			8	2.9%
		61 - 65	9.61%			Student	4.82%				100%
		66 - 70	2.88%			Rickshaw Puller	2.88%				
			100%				100%				

Findings and Discussion

The residents of Mandartola resettlement housing have provided feedback regarding their past and current situations concerning selected attributes under six crucial factors that significantly impact the living conditions of resettlement housing. The comparative analysis delineates the disparities between the previous and current status of various attributes, elucidating their correlation with the overall living conditions. Ultimately, this analysis furnishes a comprehensive summary of the present situation, delineating whether it has improved, remained constant, or deteriorated.

Tenureship Pattern

The status of tenure emerges as a crucial determinant in assessing the living conditions of relocated slum dwellers, with the advantages of tenure security serving as a viable means for enabling low-income city residents to improve their housing conditions (Nyametso, 2012), making it a key factor in this study. The analysis of social attributes under the factor tenureship pattern, namely tenure security, social assets, and social relationships (Table 3), reveals a notable enhancement in tenure security, albeit not reaching an optimal level. The connection between tenure security and social relationships becomes apparent, with a strengthened sense of ownership linked to both written documentation and interpersonal ties and subsequently contributes to social assets of the resettlers. Although dwellers have received written ownership documents, signifying an improvement, concerns arise when emergency repairs or modifications are needed, as the residents are prohibited from making any alterations.

This restriction contributes significantly to dissatisfaction with tenure security. On the other hand, a substantial negative deviation is observed in social assets. The exclusion of dwellers from the development process, coupled with limited opportunities for involvement in post-occupation development and maintenance work, stands out as a primary factor in the erosion of social assets. The absence of initiatives promoting social welfare and community development during the relocation process hinders the integration and empowerment of the community. Additionally, in their former settlement, residents had relatives and friends nearby, which contributed significantly to their social capital. These relationships have provided critical support, such as assistance in lending money, searching for jobs, or even maintaining employment. During a focus group discussion, one woman shared her experience as follows.

"I used to work as a house servant near my previous settlement. My mother's house was very close to mine, so I could leave my children with her and go to work. However, in the current situation, this is no longer possible. After the resettlement, I have become jobless."

Comparatively, there is a minor deviation in the mean values for social relationships. While the allocation of dwelling units to evicted slum dwellers from Gopalganj Sadar ensures continuity among some of the residents, not all have relocated to Mandartola housing. This partial relocation may account for the slight negative variation in social relationships.

Table 3: Comparison of social attributes under the factor tenure ship pattern
Source: Authors

Attributes		Tenure Security		Social Asset		Social Relationship	
Location		Previous	Present	Previous	Present	Previous	Present
N	Valid	104	104	104	104	104	104
	Missing	0	0	0	0	0	0
Mean		2.7308	3.8212	4.2885	2.7308	4.2115	3.8981

Income-expenditure Ratio

The second identified factor, the income-expenditure ratio, encompasses three interrelated attributes: housing expenditure, service and utility costs, and income-generating opportunities. The affordability of house rent is intricately linked to the manageability of service and utility costs, creating a symbiotic relationship between these two elements. Housing affordability is primarily determined by the balance between a household's monthly income and expenditures (Anacker, 2019). In the study area, a decrease in household income due to job loss and reduced earning opportunities has prompted the resettlers to seek alternative sources of income. Lower income levels and financial instability have accelerated households' involvement in home-based economic activities to supplement their earnings. Providing opportunities for income generation plays a crucial role in helping resettlers adapt to their new settlement and mitigate the impacts of income loss (Foishal et al., 2023). In the context of Mandartola housing, residents pay a seemingly affordable monthly amount, yet ambiguity arises regarding whether this constitutes rent or installment for permanent ownership. Compounding the issue is the inadequacy of essential services and utilities, forcing some inhabitants to seek alternative arrangements at higher-than-normal rates. Consequently, the combined burden of housing expenditure and service costs surpasses the affordability threshold.

"When we moved to Mandertola, I lost my job. Previously, my husband and I had a combined monthly income of 18,000 BDT (€180), but after losing my job, our family income dropped to 11,000 BDT (€110). This reduction made it difficult to cover our household expenses, so I began making paper packets to earn some additional income."

In the economic attributes section (Table 4) under the factor income-expenditure ratio, a notable deficiency is identified in income-generating opportunities, primarily stemming from the relocation of individuals from the city center to the periphery. This shift has disproportionately affected women, particularly those previously employed as household servants for multiple residences. The challenges to engaging in economic activities are compounded by increased distances and commuting costs, alongside restricted space that curtails the feasibility of home-based enterprises. While housing expenditure has not seen an increase compared to their prior location, dissatisfaction arises among the residents due to inadequacies in utility and service facilities. This discontent stems from the perception that they are now paying more for limited services and utilities, a departure from the lower-cost access

to such amenities in their former settlement. Furthermore, certain dwelling units encounter maintenance challenges stemming from subpar construction quality. In specific instances, the corrugated sheet (C.I) roofing fails to provide adequate protection against monsoon rain, and some units experience partial plinth loss due to an improper sand filling process. While durable materials have diminished the need for frequent maintenance, it has concurrently raised costs. In their previous location, residents faced more frequent maintenance issues, albeit at a lower cost owing to the use of temporary materials

Table 4: Comparison of Economic Attributes under the Factor -Income-expenditure Ratio

Attributes		Income Generating Opportunity		Housing Expenditure		Service and Utility Cost		Maintenance Cost	
Location		Previous	Present	Previous	Present	Previous	Present	Previous	Present
N	Valid	104	104	104	104	104	104	104	104
	Missing	0	0	0	0	0	0	0	0
Mean		4.3077	1.8462	4.2885	3.9038	3.8365	3.4135	3.7788	3.4423

Dwelling Unit Conditions

The third identified factor, dwelling unit conditions, encompasses five crucial built environmental attributes, with dwelling unit size emerging as the initial focal point. Recognized as a pivotal factor, the size of the dwelling unit must align with the subjective space requirements of its inhabitants, varying significantly based on family size. Addressing the challenge of catering to diverse family needs during large-scale relocations necessitates providing the opportunity for dwelling unit extension. This extension provision allows for the horizontal or vertical expansion of units, accommodating the spatial demands of extended families. However, the success of this provision is contingent upon spatial flexibility, the third built environmental attribute. Spatial organization within the dwelling unit, aligned with usage patterns and resident requirements, is integral to the effectiveness of unit size and extension opportunities.

Although tenure security encourages investment in housing upgrades (Nyametso, 2012), the situation in Mandartola housing presents several constraints. Firstly, the organizational layout of the settlement restricts horizontal expansion, as each building block comprises two adjacent housing units. Secondly, the written ownership documents explicitly prohibit both horizontal and vertical expansions, further limiting residents' ability to upgrade their housing. This restriction inhibits modifications to the unit, exacerbating challenges associated with spatial organization. Additionally, the current spatial configuration fails to align with the space utilization patterns and needs of the residents, impeding dwelling unit extension for families requiring more space. In contrast to these restrictions, many resettlers have modified their housing units by repurposing spaces, such as converting kitchens and verandas into bedrooms, or constructing small additional rooms and kitchens outside the building block using temporary materials (Foishal et al., 2023). These modifications often reduce the settlement's open spaces, leading to a decline in overall living conditions. During a focus group discussion, one respondent shared:

> "When we lived in our previous settlement, my daughter got married. After moving to this settlement, there was no extra space to stay overnight when they visited us. Therefore, I constructed an additional room."

another responded added:

> "I converted my kitchen into a bedroom for my daughter. Therefore, I made a kitchen outside my house."

The second attribute, emphasizing well-constructed dwelling units with durability, easy maintenance, and climatic comfort, underscores the importance of balancing structural permanence with environmental adaptability. In the case of Mandartola housing, the durability of brick-built structures is compromised by climatic discomfort, as units with minimal ventilation and heat-absorbing materials contribute to an inhospitable living environment during the summer season. This highlights the need for a holistic approach to construction that considers both durability and climatic considerations to ensure the long-term well-being of the inhabitants. All the attributes within the built environment section under the factor Dwelling Unit Conditions (Table 5) have experienced degradation, with the exception of the 'physical condition of dwelling units.' as housing units of resettlement site were built with more durable materials like brick and CI sheets as compared to their previous settlements where most of the houses were temporary because of constant threat of eviction.

A conspicuous adverse change is observed in the aspect of dwelling extension, as there is no provision for such expansion if required. Similarly, a noteworthy negative variation is noted in spatial flexibility and dwelling unit size. The arrangement and dimensions of internal spaces do not align with the inhabitants' needs, and the rigid compartmental arrangement restricts user-friendly organization within. Furthermore, a significant negative variation is identified in climatic comfort. Factors such as a lack of openings, corrugated sheet (C.I) roofing with low building height, and the absence of electricity contribute to uncomfortable climatic conditions within the unit during the summer season.

Table 5: Comparison of built housing unit related attributes under the factor dwelling unit condition
Source: Author

Attributes		Freedom of Dwelling Unit Extension		Dwelling Unit Size		Spatial Flexibility		Physical Condition of Dwelling Unit		Climatic Comfort	
Location		Previous	Present	Previous	Present	Previous	Present	Previous	Present	Previous	Present
N	Valid	104	104	104	104	104	104	104	104	104	104
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		4.3654	1.5192	4.3558	2.0577	4.2692	2.0385	3.2308	3.8269	4.2596	2.0000

Location of the Settlement

The fourth factor identified as influential in the assessment of living conditions pertains to the location of the settlement, with the most significant attribute being the proximity to job locations. In the case of Mandartola resettlement housing, a notable challenge arises as the primary earners within the families predominantly work in the city center. The settlement location plays a crucial role in shaping their quality of life (Boadi et al., 2023). The relocation to the periphery of the city significantly extends the distance to job locations, surpassing the previous commute by over five kilometers. This elongation negatively impacts the income of the residents and, consequently, disrupts access to essential services such as public transportation, markets, and schools. A similar finding was reported in a study by Perera (2014), which revealed that, in most resettlement cases of Mumbai, relocation sites are situated far from the town centers. This increased the distance to the previous workplaces of displaced individuals, resulting in higher travel times and costs. The loss of proximity to their original location negatively impacted their financial capital, leading to job losses, increased living expenses, and higher daily commuting costs (Foishal et al., 2023).

In the section pertaining to location-related attributes (Table 5), a degradation is observed in the status of each attribute. The relocation from the city center to the periphery has resulted in an increase in distance and commuting costs. Notably, the distance to workplaces has amplified, with 70% of the respondents now having job locations at Gopalganj Sadar. In their previous settlement, the proximity to job locations was within a 5 to 10-minute walking distance, whereas now, alternative modes of transportation such as rickshaws, autos, vans, or bicycles are necessitated to reach their workplaces. Similarly, distances to other public facilities

such as markets and schools have increased. Furthermore, the physical isolation from neighboring settlements by the Khulna-Gopalganj highway has resulted in a pronounced scarcity of available local transport options. During focused group discussion one respondent said as follows:

> "In my previous settlement, I used to walk to the market, workplace, and hospital, as they were all located nearby. Additionally, there were no transportation costs for my children to attend school. But, in the resettlement area, I now spend 20–30 Taka daily on transportation."

Table 3: Comparison of location related attributes under the factor location of the settlement

Attributes		Job Distance		Availability of Public Transport		Market Nearby		School Nearby		Hospital Nearby	
Location		Previous	Present	Previous	Present	Previous	Present	Previous	Present	Previous	Present
N	Valid	101	101	104	104	104	104	104	104	104	104
	Missing	3	3	0	0	0	0	0	0	0	0
Mean		4.3168	1.4851	4.5385	1.6058	4.5673	1.3558	4.4808	1.3942	4.0481	3.6250

Health and Hygiene Conditions

The fifth factor, addressing the health and hygiene conditions of the settlement, encompasses critical attributes such as the sanitation system, water supply, drinking water supply, and drainage system. Notably, relocation projects often gravitate towards areas outside the core urban zones due to high land value and scarcity within these areas, as exemplified by Mandartola housing. Unfortunately, the relocation to areas beyond municipal jurisdictions has led to a lack of guaranteed provisions for water supply, drinking water supply, and drainage systems, as weak development approaches have failed to offer remote or on-site solutions for these essential services. The success of housing projects is closely tied to the implementation of improved environments, sanitation systems, and the development of amenities and infrastructure, which have been shown to positively impact the physical and psychosocial health of residents (Nyametso, 2012). Furthermore, effective sanitation systems highlight the necessity for comprehensive improvements in water supply, access to drinking water, and drainage systems to achieve enhanced health and hygiene conditions (Nikuze et al., 2019).

In the realm of health and hygiene-related attributes (Table 6), a noteworthy enhancement has been observed in the sanitation system. This notable progress can be primarily attributed to the provision of attached toilets for each family. Conversely, substantial adverse deviations are evident in aspects such as water supply and drinking water availability. Despite the presence of a few tube wells for drinking water, their insufficient number poses a challenge. Marginal improvements are noted in the remaining two attributes. As previously mentioned, Mandartola is situated outside the Goplagonj Sadar area, resulting in the absence of municipal services in this resettlement housing. Consequently, a significant deficiency is identified in the provision of water supply, drinking water availability, drainage system, and waste management. Several participants highlighted inadequate municipal services in the new settlement. In fact, one noted:

> “In our previous slum, waste vans came every day, but here they come only two or three times a week, creating bad smells, pollution, and health issues.”
> Another added: “We do not have a regular supply of drinking water. We installed a few tube wells, but they are not sufficient.”

Table 4: Comparison of Health and Hygiene related Attributes under the Factor Health and Hygiene Conditions

Attributes		Sanitation System		Water Supply		Drinking Water Supply		Drainage System		Waste Management System	
Location		Previous	Present	Previous	Present	Previous	Present	Previous	Present	Previous	Present
N	Valid	104	104	104	104	104	104	104	104	104	104
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		3.2788	4.2654	4.2596	1.7596	4.3558	1.8558	3.1250	3.0000	3.2115	2.9327

Housing Environment of the Settlement

The sixth factor identified as being influential in evaluating the living conditions of the settlement pertains to the physical environment. Housing quality as well as living conditions are shaped not only by the dwelling itself, but also by the broader residential environment. The quality of this environment has a direct impact on human health and overall living conditions (Streimikiene, 2015). Key attributes within this factor include utilities such as gas and electricity, public amenities like playgrounds, and community schools, safety concerns related to crime and violence, and environmental issues such as noise and pollution. In the case of Mandartola, the relocation process primarily focused on providing shelter, which limited the opportunity to establish efficient utilities within the settlement. The absence of essential services, along with a lack of public amenities, has negatively impacted the daily lives of the residents. This deficiency hinders collective activities vital for the survival of low-income individuals, exacerbating challenges in both social interactions and income-generating efforts. Regarding environmental attributes (Table 7), a decline is observed in both 'utilities' and 'environmental issues.'

The lack of formal electricity and gas supply has also significantly contributed to this deterioration. Furthermore, the absence of municipal waste management and sewerage systems has led to increased environmental pollution. The settlement's proximity to a highway has also contributed to noise pollution, further degrading the 'environmental aspects' attribute. In terms of public amenities, only minor changes are evident. Resettlers have established a mosque, a temple, and a school in the vacant spaces of the settlement. Additionally, children play in the open areas due to the incomplete development of the project, resulting in minimal changes to public amenities. A similar minor change is observed in the area of 'safety,' as the residents relocated as a group from their previous settlement. However, some respondents reported an increased risk of accidents due to the settlement's location beside the highway. The resettlement approach, however, was primarily focused on providing shelter, leading to the construction of dwelling units without sufficient allocation for community spaces within the settlement.

Table 5: Comparison of environment related attributes under the factor Housing Environment of the Settlement

Attributes		Utility		Public Amenities		Safety		Noise and Pollution	
Location		Previous	Present	Previous	Present	Previous	Present	Previous	Present
N	Valid	104	104	104	104	104	104	104	104
	Missing	0	0	0	0	0	0	0	0
Mean		4.3942	1.6635	4.1058	3.9596	4.0481	3.2788	3.6250	1.8558

Summary of the Present Situation of Living Condition

A comparative analysis (Table 8) among all the attributes reveals discernible improvements in certain aspects such as tenure security, quality of dwelling units, and the sanitation system in comparison to the previous location. Conversely, attributes like social relationships, housing expenditure, service and utility costs, maintenance costs, dwelling unit size, hospitals nearby, waste management systems, drainage systems, public amenities and

safety remain similar to the conditions in the previous location. However, notable declines are observed in attributes including social asset, income-generating opportunities, freedom of dwelling unit extension, climatic comfort, spatial flexibility, job locations, access to public transport, proximity to markets, schools, water supply, drinking water supply, utility, and noise and pollution.

It is thus evident that the Mandartola Housing project has achieved limited success in enhancing living conditions as a slum resettlement initiative, with the majority of living condition attributes either remaining unchanged or exhibiting degradation.

Table 6: Summary of Living Conditions
Source: Authors

Situation	Social Attributes	Economic Attributes	Housing Unit related attributes	Location Related Attributes	Health & Hygiene Related Attributes	Environment related attributes
Improved	Tenure security		Physical condition of unit		Sanitation system	
Same	Social relationship	Housing expenditure, Service and utility cost, Maintenance cost	Dwelling unit size	Hospital nearby	Waste management system, Drainage system	Public amenities Safety
Degraded	Social asset	Income generating opportunity	Freedom of dwelling unit extension, Climatic Comfort, Spatial flexibility	Job location, Public transport, Market nearby, School near by	Water supply, Drinking water supply	Utility Noise and Pollution

The findings from Mandartola resettlement align with broader debates on housing, tenure, and livelihoods. For residents, written ownership documents provide formal tenure security, but restrictions on modifications reduce perceived permanence and satisfaction—illustrating Turner's (1976) argument that housing must be understood as a process of adaptation rather than a fixed product. Similarly, while the dwellings are physically durable, their climatic discomfort and spatial inflexibility constrain residents' ability to tailor homes to family needs, reinforcing Streimikiene's (2015) emphasis on the role of housing quality in shaping overall living standards. From an economic perspective, increased commuting costs and limited livelihood opportunities at the periphery resonate with DFID's (1999) livelihoods framework, which identifies financial, human, social, physical, and natural capitals as interdependent determinants of resilience. Mandartola's peripheral location has diminished both income opportunities and access to services, echoing Gulyani and Bassett's (2010) observation that the location of resettlement sites critically influences accessibility to infrastructure and amenities. Finally, the lack of adequate water, drainage, and communal amenities in Mandartola reflects Nyametso's (2012) finding that tenure security alone cannot ensure improved living conditions without concurrent investments in infrastructure and services.

Conclusions

This study critically examined the Mandartola resettlement housing project in Gopalganj, Bangladesh, with a particular focus on the factors influencing the living conditions of displaced communities. The research findings reveal that while the project succeeded in

securing land tenure and providing physically improved dwelling units compared to the previous informal settlements, several critical challenges persist.

First, the relocation process has disrupted the social and economic lives of the residents by distancing them from workplaces, markets, schools, and support networks. This has increased both travel costs and time, negatively affecting income generation and children's education. Second, despite improvements in sanitation and housing quality, the absence of adequate public infrastructure such as water supply, waste disposal, and reliable utilities continues to undermine living standards. Third, limitations imposed on the modification or extension of dwelling units have constrained residents' ability to adapt their homes to household needs. Finally, the lack of proper inclusion of residents from meaningful participation in site selection and project planning has led to resettlement decisions that fail to reflect community priorities, particularly regarding location and livelihood opportunities.

Overall, the Mandartola case demonstrates that resettlement initiatives, when narrowly focused on physical housing provision, are insufficient to ensure sustainable improvements in living conditions. The findings underscore the importance of integrating community participation, locational advantages, access to infrastructure, and flexibility in housing design into future resettlement programs. By addressing these dimensions, resettlement projects can move beyond securing tenure to fostering environments that genuinely enhance the well-being and resilience of displaced communities. Given these, following recommendations should be considered in the resettlement process:

- Encourage active involvement of slum dwellers in the selection of new sites and the implementation of projects. Their participation is crucial in ensuring that the chosen location aligns with their needs and preferences.
- Housing provider authorities should guarantee residents the freedom and opportunity for extending their dwelling units. Unlike in Mandartola resettlement housing, where resettlers face constraints in horizontal or vertical extensions due to a compact physical layout and building structures not designed for further vertical expansion, provisions should be made to allow for such extensions.
- To uphold the economic sustainability of relocated individuals and ensure access to essential services, utilities, and infrastructure, choose relocation sites that are closer to the original place or nearby areas with substantial job opportunities and existing urban development.
- Ensure the provision of sufficient and technically viable physical infrastructure, including water supply, sanitation, waste disposal, and legal electricity. This is essential for maintaining a healthy and hygienic environment within the resettlement settlement.

The primary limitation of this framework for assessing living conditions is that it predominantly focuses on the built environment, particularly within the housing sector. Additionally, some of the identified factors are heavily influenced by government policy; for instance, limitations in access to essential services due to government policies can be a significant contributor to poor living conditions. This focus on the built environment, without considering policy-related factors, may overlook important aspects that affect individuals' well-being and the quality of their living conditions. This study delineates critical issues inherent in the resettlement process by identifying factors directly impacting living conditions, advocating for a resettlement approach centered on improving these conditions. Prioritizing the mitigation of these factors before resettlement is posited as a means to enhance living standards. Nevertheless, it sheds light on pertinent issues such as end-user participation, tenure security extending beyond legal land rights, viewing resettlement as a developmental process, and ensuring the sustainability of resettlement approaches.

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