

Socio-Economic Impacts of Disaster-Induced Displacement on Coastal Populations in Bangladesh

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Abstract - Disaster-induced dislocation has become a global concern due to recurring natural disasters and increasing displacement. This study examines the socio-economic impacts of such dislocations on the southern coastal people of Bangladesh, with a focus on their lifestyle, health, and possessions. Utilizing a mixed-methods approach, the study involved 410 social survey respondents, 20 key informant interviews, and 10 case studies, comparing pre- and post-displacement conditions across two coastal districts. The Pressure and Release (PAR) model was employed to assess vulnerabilities, revealing that repeated displacement exacerbates economic and social insecurity, leading to marginalization and social exclusion. Displaced individuals struggle to adjust to new living conditions, food scarcity, and job integration, creating lives marked by uncertainty. This often results in humanitarian crises, including poor sanitation, loss of land, and inadequate healthcare. The findings aim to inform policymakers and development practitioners about the vulnerabilities of displaced coastal populations in Bangladesh.
Keywords: Disaster-Induced Dislocation, Socio-Economic Impacts, Coastal Bangladesh, Pressure and Release (PAR) Model, Displacement Vulnerabilities

I. INTRODUCTION

Dislocation refers to a complex process with multiple trajectories, each carrying serious implications as people change their spatial location. The resulting movements take various forms such as flight, evacuation, displacement, resettlement, or migration, which vary based on social and environmental relations specific to each context (Smith, 2018). Since this phenomenon affects a vast number of lives, causing significant disruptions in social, economic, and cultural settings globally, it is also a humanitarian concern, particularly for affected populations in South Asia, especially Bangladesh. Disaster-induced dislocation currently ranks among the most critical disaster-related effects worldwide, encompassing dislocation, migration, transformation, and displacement (Refugee Studies Centre, 2008).

Due to global climate change, natural hazards and disasters have become more frequent in recent years. Both sudden and slow-onset disasters lead to prolonged vulnerability for affected populations. Repeatedly, such disasters force people to be displaced from their homeland to other areas. Large-scale dislocations have numerous social, cultural, and health impacts on displaced individuals. Like other South

Asian countries, Bangladesh faces major challenges in addressing this issue. One of the primary concerns involves coastal people who are frequently dislocated to urban areas within the country (Roy *et al.*, 2022; Parven *et al.*, 2022; Rahman & Rahman, 2015). The severity of their experiences often leaves them unable to overcome their vulnerabilities. For example, Cyclone Aila continues to have a disastrous impact on coastal populations even a decade after its occurrence, contributing to the loss of living land, cultivable land, employment opportunities, and property (Arnold, 2016). On average, forced migration, whether within or across national boundaries due to the wide range of natural calamities driven by climate change, remains a central issue affecting disaster-prone, low-lying communities.

II. METHODOLOGY

This research aims to explore the multifaceted impact of forced displacement, focusing on the social, economic, political, and cultural consequences faced by displaced individuals. Additionally, it assesses the vulnerabilities these populations experience both before forced migration and after resettlement. To achieve this objective, the study employed a mixed-methods approach, combining quantitative and qualitative methods. Data collection tools included surveys, interviews, and key informant interviews (KII) derived from both research approaches. Several studies (Paul & Islam, 2015; Islam, 2017) have also utilized mixed methods to deepen understanding of the processes and impacts of displacement. The mixed-methods approach enables an exploration of the conditions of displaced people from multiple dimensions, including social, economic, and physical health perspectives. Accordingly, the study addresses the impact of disaster-induced dislocation on lifestyle, socio-economic status, and adaptive strategies by comparing the past and present conditions of displaced individuals.

Study areas were selected based on the purpose of the research. Given that the research objective focuses on highly affected and vulnerable populations, Satkhira and Khulna districts in Khulna Division were chosen as the most affected areas, according to reports and analyses from the United Nations Framework Convention on Climate Change (UNFCCC) and the Internal Displacement Monitoring

Centre (IDMC). The study targets the population most affected and displaced by natural disasters. The sample consists of the most vulnerable, displaced, homeless, and disadvantaged persons living in coastal areas. A total of 410 displaced households participated in the survey, along with 20 participants for KII and 10 participants for case studies, selected from affected areas. Purposive sampling was used to select participants while maintaining heterogeneity in their lived experiences. Respondents were chosen from the study areas based on criteria such as repeated vulnerability due to natural disasters and displacement to new areas for survival. Given that many locations were partially inaccessible by road, researchers traveled by boat to cross rivers and used motorcycles to navigate muddy roads over long distances with guidance from Google Maps and local inhabitants.

Primary data collection involved using a semi-structured questionnaire administered to displaced populations in several study areas, including Shyamnagar, Assasuni, Satkhira Sadar, Koyra, and Dumuria (see Figure 1). Separate checklists were prepared for case studies and KII. A pilot study was conducted in one union of Khulna

District, which facilitated modifications to the questionnaires and data collection techniques. Final data from each union were kept in separate files and subsequently compiled for statistical and qualitative analysis. Data sets from eight unions were tabulated on a computer and classified for proper analysis. Data processing was performed using SPSS software (version 21.0). In the data analysis phase, key points were identified to ensure that the outputs represented the statistical measures needed to support the study’s core objectives. Thematic analysis was conducted to examine disaster-induced displacement among coastal populations. The analysis focused on three main variables: factors of displacement, socio-economic vulnerabilities, and adaptive strategies employed by affected individuals. The researcher quantified the level of suffering by comparing past and present indicators, such as income, living area, housing conditions, occupation, savings, food habits, and health status, to assess the severity of displacement’s impact on affected populations. Data are presented using statistical tests, multivariate tables, bar and pie charts, line graphs, radar charts, and other visualizations for ease of interpretation.

Study Area Map

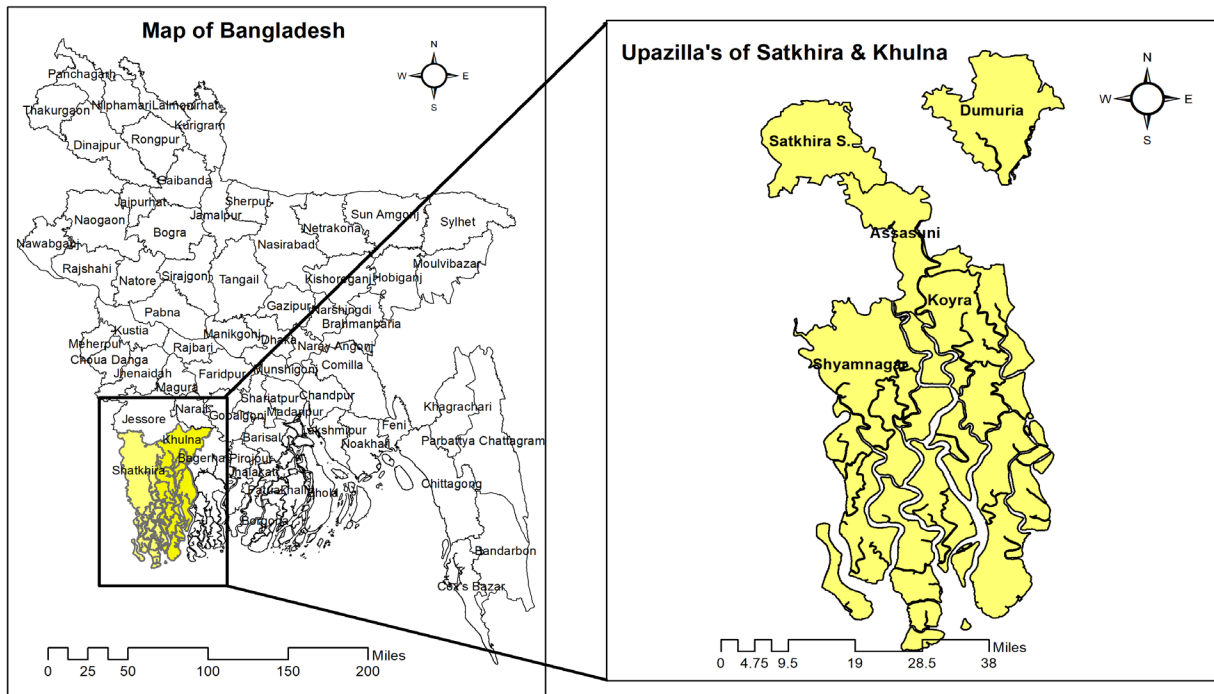


Fig. 1 Map of the study areas

The research questionnaires were well-structured, precise, feasible, and considerate toward respondents, and they were designed to align with the study’s objectives. A written consent letter was attached to each questionnaire, and the researcher obtained informed consent from every respondent before posing any questions. The researcher informed the respondents about the purpose of the study and the nature of the inquiry. Participation was entirely

voluntary, with assurances that all personal information would be kept confidential and that respondents had full freedom to withdraw from the survey at any time. Pictures, statements, and recordings were used solely for the purpose of the study, with respondents’ consent. The study adhered strictly to the ethical guidelines approved by the Department of Sociology, University of Dhaka.

III. THEORIZING DISASTER INDUCED DISLOCATION

A. Operational Definition: Disaster Induced Dislocation

Social dislocation resulting from climate-induced movement, including both sudden and slow-onset natural events, leads to displacements that can last for varying durations - ranging from minimal to extended periods. This dislocation may or may not allow affected populations to return to normalcy and impacts heterogeneous populations socially, economically, and culturally on different scales. These effects manifest through temporary or permanent, short- and long-distance movements, evacuations, displacements, resettlements, or migrations within a geographical area, significantly disrupting their social lives.

This study investigated the effects of disaster-induced displacement among coastal people in Bangladesh. The paper focuses on literature that examines the causes, nature, and various impacts of disaster-induced displacement arising from climate change, natural disasters, and other vulnerabilities. The term “displacement” is complex and often considered a part of dislocation, referring to the movement of disaster-affected people from high-risk areas to safer locations. Many experts emphasize the large-scale dislocations resulting from catastrophic disasters and natural hazards, compounded by inadequate responses from the state, institutions, organizations, and legal frameworks to address these global issues through effective policies and engagement of local stakeholders (Gлаго, 2021; Tierney & Smith, 2012; Wisner, 2014; Islam *et al.*, 2016; Arnold, 2016). In this study, displacement is analyzed as a micro-level component of dislocation.

The relationship between climate change, natural disasters, and disaster-induced displacement is well-documented in the literature. A significant body of work identifies displacement as an adaptive strategy to escape the severity of natural disasters, which impact many people in coastal areas (Rahman & Gain, 2020; Islam & Khan, 2018; Black *et al.*, 2013; Nielsen, 2008). Between 2008 and 2014, approximately 4.7 million people in Bangladesh were displaced annually due to sudden-onset events and natural hazards, leading to forced migration (IDMC, 2015).

In 2019 alone, approximately 4.1 million new displacements were recorded, the highest figure since 2008 (Smith & Shepard, 2021). Displacement in coastal areas often results in tension and conflict among affected populations, forcing them to move from one place to another (Barnett & Adger, 2007).

Studies have identified riverbank erosion, sea-level rise, heavy rainfall, and flooding as primary causes of displacement for coastal populations (Gravgaard & Wheeler, 2009; Islam & Hasan, 2016; Subhani & Ahmad, 2019). On average, inhabitants of char (river islands) must relocate five to seven times due to river erosion

(Environmental Justice Foundation, 2004). Among Bangladesh’s 64 districts, people from 24 coastal and mainland districts are frequently displaced due to natural disasters (Displacement Dissolutions, 2012). Thus, natural disasters adversely impact coastal people’s displacement experiences in Bangladesh’s southern belt.

The impact of disaster-induced displacement has been thoroughly documented in various studies. According to a Center for Strategic and International Studies (CSIS) report (2016), over 70% of the five million people living in Dhaka’s slums were displaced by environmental disasters. Some studies use social and economic indicators to measure the impact of displacement and the vulnerabilities of coastal populations, highlighting threats to their livelihoods and food security (Huq *et al.*, 2015; Subhani & Ahmad, 2019; Martin *et al.*, 2014).

Additional impacts include loss of land for cultivation and residence, changes in occupation, and inadequate sanitation (Garai, 2014; Sarker *et al.*, 2019; Islam & Hasan, 2015). Recurrent disasters, crop damage, job scarcity, and other socio-economic factors exacerbate vulnerable conditions (Pervin *et al.*, 2009). Penning-Rowshell *et al.* (2013) argued that affected individuals often exhaust their savings when forced to relocate due to sudden disasters. Islam and Hasan (2018) emphasized the plight of char residents, who must move frequently due to a lack of income-generating activities and skills. The nexus between natural disasters and displacement underscores the need for comprehensive analysis and integration of social and environmental interactions among affected populations.

Numerous studies have identified prevalent physical health issues associated with climate change (Chowdhury *et al.*, 2020). Kabir (2012) found that extreme weather events, such as temperature increases, raise the risk of infectious and vector-borne diseases (e.g., dengue, malaria, diarrhea), which disproportionately affect disaster-impacted populations. Additionally, hot weather events have rendered around nine million people homeless and displaced for an average duration of 38 days over the past decade. Health and well-being are often overlooked when developing initiatives for displaced populations in Bangladesh.

Most studies on disaster and displacement address vulnerabilities in social and physical contexts, such as livelihood loss, occupational changes, and health-related issues in response to sudden-onset disasters in coastal areas. However, few studies comprehensively explore the impact of displacement on coastal populations.

This paper employs a mixed-method approach to extensively analyze the consequences of displacement through a comparison of the social, economic, and environmental conditions before and after displacement, quantifying the sufferings of displaced individuals in Bangladesh’s southern coastal region.

B. PAR Model

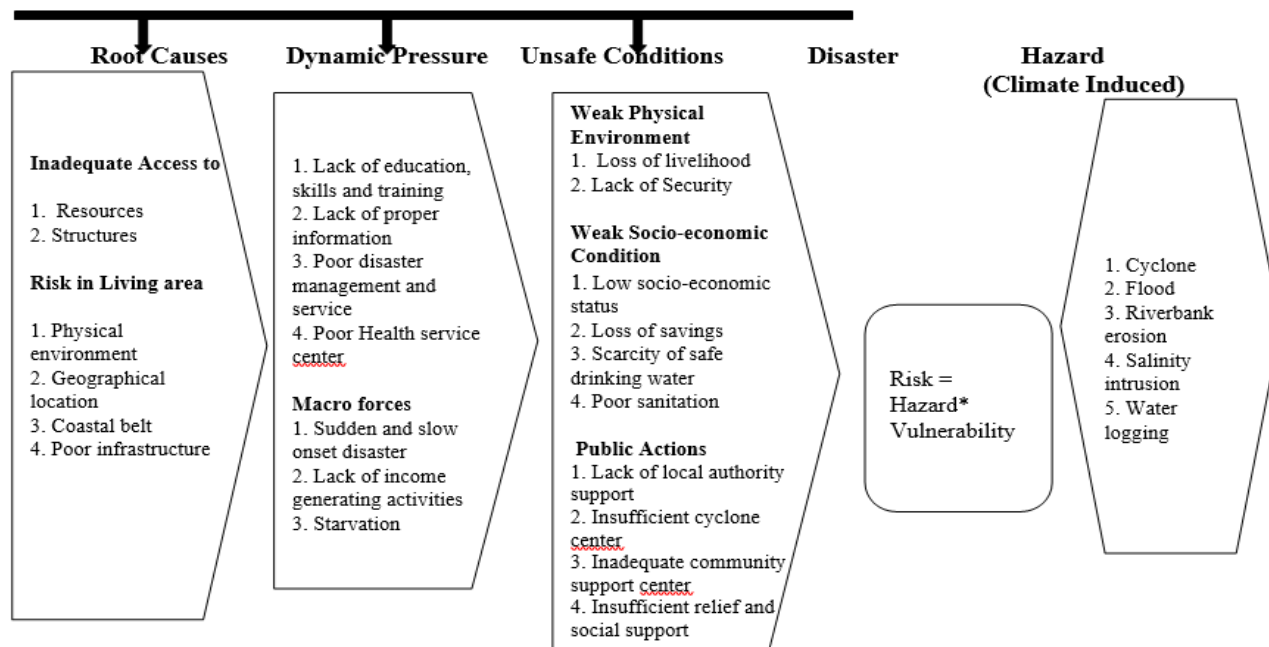


Fig. 2 Impact Analysis of Disaster induced displacement utilizing PAR Model

The study was designed using the Pressure and Release (PAR) model developed by Wisner *et al.*, (1994, 2003). This model (see Fig. 2), widely acknowledged and used in conceptualizing social vulnerability and displacement, explicates and analyzes the progression of vulnerability through three key components: root causes, dynamic pressures, and unsafe conditions affecting disaster-impacted populations. In applying the PAR model, the identified root causes include vulnerable geographical locations, inadequate infrastructure, limited resources, and restricted access to local authorities. Additionally, a lack of adequate knowledge, skills, and training; poor disaster preparedness; insufficient information and communication systems; and macro-level forces such as unemployment, loss of agricultural land, and frequent sudden disasters are categorized as dynamic pressures.

Regarding unsafe conditions, factors such as low socio-economic status, limited support from local authorities, insecurity, and inadequate public actions, including weak community initiatives and social cohesion, exacerbate vulnerabilities on a large scale. Both sudden and slow-onset disasters - including cyclones, floods, riverbank erosion, salinity, and storm surges - are critical climate-induced hazards that have been discussed in terms of their substantial impacts.

IV. FINDINGS OF THE STUDY

A. Factors Influence to Displacement

Disaster-induced displacement can be explained by analyzing Lee's theory of migration, which is commonly used to relate the decision to migrate to the influence of

push and pull factors. Push factors are conditions that create pressure and compel individuals to move to new places. These factors can include a lack of economic, environmental, and social opportunities in the home area. Conversely, pull factors refer to elements in a new location that attract displaced individuals, such as better opportunities for living. In this phase, economic, environmental, and social factors in the new host area also play a role in motivating displacement.

In determining the issue of displacement, there are several control variables that influence the affected community's decision to move to a new area. The recurrence of natural disasters, income level, sources of income, age variations among individuals, and living conditions are core components that contribute to displacement. From the in-depth interviews, key informant interviews, and case studies, it was found that, after severe disasters, many people in coastal areas lose their cultivable land, crops, and homes. They often have little to no source of income or property to sustain their livelihoods. In these precarious situations, they are compelled to move to better places for living. Additionally, higher wages, the possibility of generating savings, and other economic factors serve as pull factors, drawing them to urban areas. Some displaced individuals also identified the lower risk of natural hazards as a key environmental pull factor. A large portion of respondents emphasized the security of the place, the opportunity to stay with relatives, and access to relief and social services as factors that attracted them to their current locations. In summary, disasters and their severe impacts create push and pull factors for displacement, as observed in the qualitative analysis of the respondents.

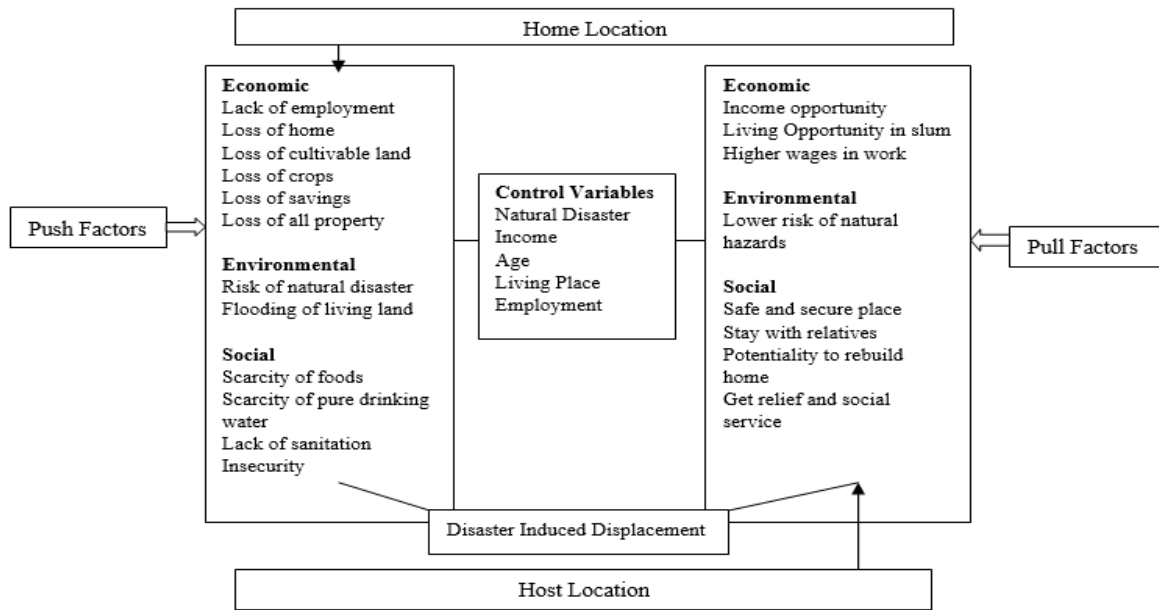


Fig. 3 Push and Pull factors of Displacement

B. Socio-Demographic Characteristics

A total of 410 displaced respondents from different areas of displacement participated in the study. Among the respondents, 181 (44.1%) were male and 229 (55.9%) were female. The sample was skewed toward female participants, as the study collected data from household settings. The average household size was 5.2, which is similar to the average household size in Bangladesh. From the interviews

and key informant interviews (KIIs), the study reveals that most of the affected people began migrating an average of two to three days after the disaster. Initially, they tried to cope with the disaster, such as cyclones, floods, and other natural disasters. After a certain period, when they faced food shortages, lack of clean drinking water, and security concerns, they were compelled to relocate to nearby urban areas. The migration process typically took between one and fifteen days.

TABLE I DEMOGRAPHIC VARIANTS OF THE DISPLACED COMMUNITY

Variables	Categories	No of Respondents	%
Gender	Male	181	44.1
	Female	229	55.9
Age (Years)	18 -25	58	14.1
	26 -35	112	27.3
	36 -45	90	22.0
	46 -60	118	28.8
	> 60	32	7.8
Education	Can sign only	157	38.3
	Primary	76	18.5
	Secondary	122	29.8
	Higher Secondary	37	9.0
	Graduation	11	2.7
Religion	Post- graduation	7	1.7
	Islam	213	51.6
Household size	Hindu	197	48.4
	1-2	41	10.4
	3-4	76	18.5
	5-6	115	28.3
	7-8	102	25
	9-10	51	12.5
	>10	25	5.3

In analyzing the demographic characteristics of the displaced community, the average age of the respondents was 40 years, with most respondents aged between 40 and 55 years. Additionally, one-third (38.3%) of the displaced individuals could only provide a signature when asked about their educational qualifications. Only 2.7% of respondents had graduated, which is consistent with the average educational qualification level in rural areas. The majority of the inhabitants practice Islam, followed by Hinduism.

Table II demonstrates the conditions of the people before and after displacement. The study found that nearly 50% of the disaster-affected people moved to urban areas after the disaster, resulting in a transformation of their living conditions. In urban areas, they changed their occupations, with some becoming day laborers (24.6%), rickshaw pullers (11.0%), garment workers (5.9%), and housemaids (3.2%), while most were engaged in fishing (61.9%). Thus, the

event of displacement had a significant impact on the transformation of occupations in the host area, which is positively correlated ($r = 85.7$, $p < 0.001$).

Furthermore, a significant portion of respondents reported a decrease in their income levels and savings due to displacement, which made them more vulnerable ($r = 175.82$, $p < 0.001$). Only half of the respondents were able to manage daily food after displacement, and this also showed a positive correlation ($r = 21.17$, $p < 0.001$). Additionally, 39.9% of respondents had access to electricity, a decrease of 32.7% ($r = 30.45$, $p < 0.001$).

An acute lack of clean drinking water was another fundamental issue faced by the displaced people in the host area. They had to depend on rainwater or unsafe sources for drinking water. This shows a positive correlation between displacement and the increasing scarcity of clean drinking water in the host area ($r = 39.912$, $p = 0.001$).

TABLE II SOCIO-ECONOMIC CONDITION BEFORE AND AFTER DISPLACEMENT

Variables	Categories	Before Displacement (%)	After Displacement (%)	Test Score
Living Area	Village Area	78.5	47.3	3.22
	Slum Area	21.5	39.3	
	Suburban	0.00	2.9	
	City Corporation area	0.00	10.5	
Housing Condition	Hut	5.4	67.0	13.409**
	Tin Shade House	91.6	27.4	
	Brick built with Tin Shade	2.9	5.6	
	One Storied Building	0.00	0.00	
Occupation	Cultivation	16.3	4.6	85.761**
	Fishing	61.9	15.6	
	Transportation worker	14.2	26.1	
	Small Business	5.1	9.0	
	Day labourer	2.7	24.6	
	Rickshaw Puller	0.00	11.0	
	Garments Worker	0.00	5.9	
	Housemaid	0.00	3.2	
Income (BDT)	≤ 5000	21.5	61.4	175.823**
	5001 – 10000	47.9	25.4	
	10001 – 15000	25.2	10.8	
	15001 - 20000	2.0	1.7	
	> 20000	3.4	0.7	
Savings (BDT)	No savings	9.0	40.2	4.248*
	≤ 5000	19.5	39.3	
	5001 – 10000	33.9	18.8	
	10001 – 15000	19.0	0.2	
	15001 - 20000	2.9	1.0	
	> 20000	15.6	0.5	

Health	Daily food (three times in a day)	78.5	32.9	21.170**
	Balanced diet	62.9	12.7	16.644**
Electricity service	Access to Service	72.6	39.9	30.450**
	Ability to use (light and fan)	67.2	34.2	44.762**
Sources of Drinking Water	Tube well (self)	6.8	1.2	39.912*
	Tube well (others)	68.7	36.4	
	River	4.6	2.2	
	Pond	2.0	9.3	
	Rain	17.8	50.9	
Source of cooking	Clay stove	100	89.2	-
	Gas	0.00	7.3	
	Both	0.00	3.4	
High protein consumption (Meat/fish)	2-3 times in a week	3.2	0.00	33.728**
	1 time in a week	34.5	0.00	
	Less than 1 time in a week	55.0	59.4	
	1 time in a month	7.3	24.0	
	1 time in more than one month	0.00	16.6	
Source of sanitation	Open place	0.5	3.9	89.262**
	Latrine (covered by polythene)	53.3	61.4	
	Hanging latrine (Tin shade and slab)	38.4	30.3	
	Latrine (covered by brick)	7.8	4.4	
Tools of communication	Non-android phone	59.5	72.9	44.433**
	Android phone	39.8	10.3	
	By neighbour	0.7	16.8	
Distance between workplace and home	≤ 10 kilometre	76.6	20.2	25.545
	11-20 kilometre	13.7	17.3	
	21-30 kilometre	4.9	15.9	
	31-40 kilometre	2.1	21.2	
	> 40 kilometre	2.7	25.4	

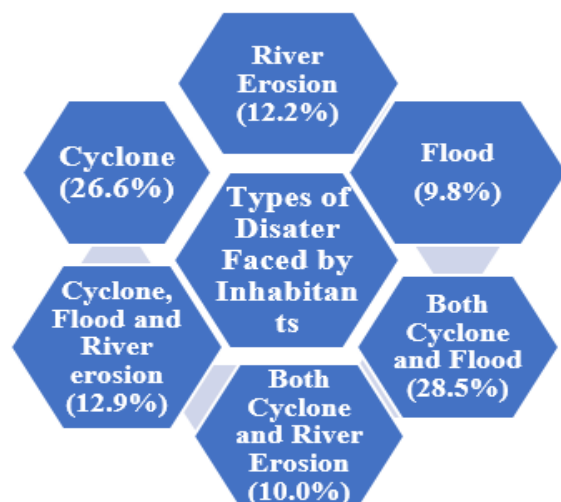


Fig. 4 Experience of Multiple Disasters

People in the disaster-prone areas of Satkhira and Khulna are accustomed to facing severe disasters repeatedly, such as river erosion, cyclones, floods, and thunderstorms. A total of 26.6% of the respondents have experienced cyclones and waves that destroyed their houses (Figure 4). Additionally, 12.2% have faced river erosion, and 9.8% have experienced severe flooding, which washed away their homes and agricultural lands, as well as their gher. In the study, 28.5% of the respondents reported experiencing cyclones with flooding, the highest percentage in this category. Furthermore, 10% of those living in char areas and near riverbanks reported facing both cyclones and river erosion, while 12.9% were most vulnerable, having experienced both cyclones with flooding and river erosion.

The people of Khulna and Satkhira are particularly vulnerable to these disasters, which aligns with the findings of previous studies (Akter, 2009). In essence, these

individuals have lost everything and are compelled to move to another location in order to survive. Several studies highlight that floods, cyclones, river erosion, and droughts significantly impact coastal communities, causing them to suffer as they migrate to new destinations (Mallick *et al.*, 2011; Islam & Hasan, 2016; Garai, 2014).

C. Disaster Induced Displacement and Health

Table III presents the gender-based health services for displaced individuals before and after displacement. The

people in the study area typically rely on various sources for health services based on availability, including home remedies, Kabiraji treatment, NGOs, governmental organizations, and village quacks. Before displacement, services from village quacks were the most accessible form of healthcare. Specifically, 30.9% of households had sought services from village quacks, with 17% of females and 13.9% of males utilizing these services. Kabiraji treatment, a traditional method, was also commonly used by 11.2% of the population.

TABLE III HEALTH SERVICES BEFORE AND AFTER DISLOCATION

Variable	Category	Gender						
		Previous Place			Present Place			
		Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Net Change
Health Care Services	Home remedies	8.4	10.4	18.8	17.5	21.8	39.3	+
	Kabiraji treatment	4.6	6.6	11.2	1.4	1.8	3.2	-
	NGO health care	7	9.6	16.6	11.5	15	26.5	+
	Government organization	9.8	12.7	22.5	9.0	10.1	19.1	-
	Village quack	13.9	17.0	30.9	4.7	7.2	11.9	-
	Total	43.7	56.3	100	44.1	55.9	100	

+ = Increased dependency in present place, - = Decreased dependency in present place

After displacement, as the lands were flooded and only one or two village quacks remained per union, with many people displaced, the reliance on village quacks decreased significantly, dropping to 11.9%. Government welfare organizations played a significant role in providing healthcare services, with 22.5% of respondents reporting they had utilized government health services before displacement. Although government healthcare services were available, they were not sufficient to support the entire population due to poor quality and a lack of manpower. After displacement, 19.1% of respondents had access to government healthcare services, which they preferred due to their low cost despite the low quality.

The intensity of waterborne and vector-borne diseases increased among the displaced population due to the unavailability of proper healthcare services. NGOs also played a role in providing healthcare services, with 26.5% of respondents seeking care from NGOs after displacement. Of these, 11.5% were male, and 15% were female. Key informant interviews (KIIs) revealed that the quality of service provided by NGOs was not satisfactory; they primarily offered treatment for common illnesses like fever, cough, and diarrhea, as well as free medical check-ups and medication for minor conditions. However, many people struggled to access these services due to long distances and inadequate transportation systems. As a result, they relied on home remedies for healthcare.

Before displacement, 18.8% of households (10.4% female and 8.4% male) solely relied on home remedies to treat

illnesses. After displacement, many people became more vulnerable, with no access to medical services due to the distance of healthcare centers. Approximately 20% of people had access to government health services.

From the case study and KIIs, it was also revealed that low-income households received better healthcare services in urban areas after displacement, as there were several free treatment camps and other facilities in government hospitals. A respondent, Aklima Khatun, stated: *"It's our social status that makes it difficult to accept relief during times of disaster because we worry about what our poorer neighbors will think of us. We don't want to reveal our vulnerability in the public sphere."*

In contrast, middle-income households had to spend more money to access better healthcare facilities in urban areas, as they were reluctant to use free medical services in order to maintain their social status. For lower-middle and middle-income individuals, it was difficult to afford proper medical care. Previous studies have found similar findings in this regard (Chowdhury *et al.*, 2020). After displacement, 39.3% of displaced households (17.5% male and 21.8% female) continued to rely on home remedies for medical treatment. As a result, they suffered from frequent vector-borne diseases such as Dengue and Chikungunya, especially during the rainy season. Women and children were particularly vulnerable to these diseases due to limited access to healthcare centers. In conclusion, disaster-induced displacement has severely impacted healthcare services for displaced populations.

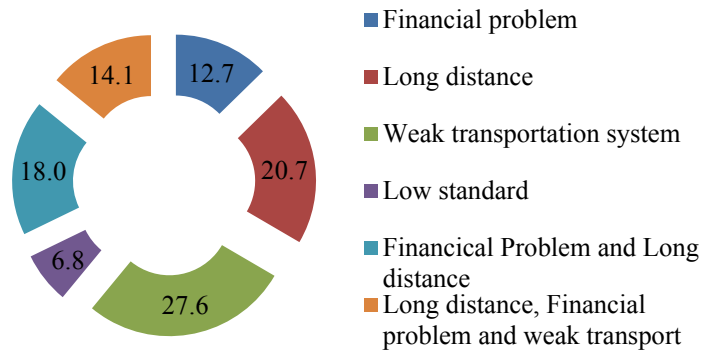


Fig. 5 Difficulties in health care services

The study found that 15.4% of participants reported experiencing skin problems, either more or less frequently, due to the hot temperatures and waterlogged conditions during the rainy season. Additionally, 12.9% of participants

mentioned experiencing pain in various parts of the body after facing disaster and displacement. Furthermore, 12.2% reported having a fever from prolonged exposure to water, and 11.7% experienced weakness due to construction work.

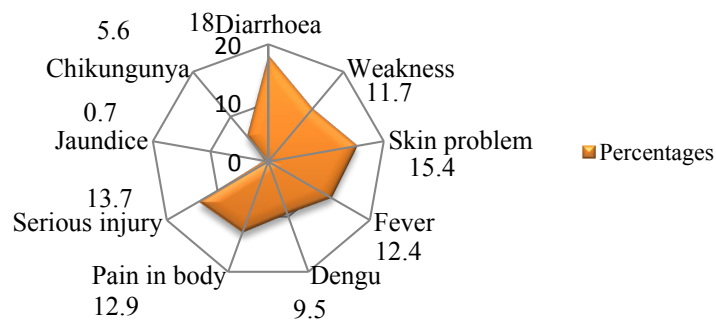


Fig. 6 Types of Physical Problems after Disaster-Induced Dislocation

After displacement, 13.7% of participants reported serious injuries that occurred while moving to a safe place during the disaster or while engaging in dangerous work (e.g., electrical work, road and building construction, and factory work) in the new location. Additionally, 18% experienced diarrhea after displacement. Furthermore, participants had to endure the rainy season while living with diseases such as dengue (9.5%), chikungunya (5.6%), and other seasonal illnesses. Several studies also show the magnitude of these problems (Kabir *et al.*, 2016). Children, in particular, are more vulnerable to maintaining their physical health, as they suffer from various diseases (Kamruzzaman *et al.*, 2015). Additionally, Chowdhury *et al.* (2020) note that the scarcity of clean drinking and usable water contributes to the prevalence of waterborne diseases.

D. Challenges in the Dislocated Areas

The study found that displaced people are facing significant challenges in both their previous and new environments. The foremost priority for homeless individuals is securing shelter for their families. Among the respondents, 15.4% of females and 12.0% of males reported living in unbearable conditions, struggling to find permanent housing. Those between the ages of 46 and 60 (8.5%) are particularly

affected. Moreover, individuals who are financially incapable find it even harder to face the challenges in the new location. It is important to note that an income below 5,000 Taka is insufficient to support a family, and 18.3% of respondents agreed with this concern. Additionally, managing food, securing jobs, dealing with sanitation issues, and adjusting to the community and neighbors are the most intolerable challenges they face. Females are more vulnerable than males in managing jobs, with 20.5% of females and 13.9% of males reporting difficulties. Among those affected, individuals aged 26 to 35 (8.8%) and 46 to 60 (10.5%) were most impacted.

Older individuals, aged over 60 years, face difficulties moving around, as many suffer from various diseases and a loss of physical ability to work in the new environment. Another factor is that those who have moved to urban areas, such as Dhaka and Chattogram, and are working in garments or industries, find such work unsuitable due to their age, as noted in the survey and key informant interviews (KIIs). Additionally, adjusting to the community and neighbors is also challenging for some female respondents (2.4%), who reported difficulties in adapting to daily activities with their neighbors.

TABLE IV INDICATORS OF NEW CHALLENGES TO THE DISLOCATED ENVIRONMENT

Variables	Categories	Manage Shelter for family	Manage food	Manage job	Sanitation problem	Adjust with community	Adjust with neighbour	Total
Gender	Male	12.0	10.7	13.9	2.9	2.9	1.7	44.1
	Female	15.4	12.9	20.5	2.7	2.0	2.4	55.9
Age (Years)	18-25	4.1	3.2	4.4	1.5	0.2	0.7	14.1
	26-35	8.3	5.4	8.8	0.7	2.4	1.7	27.3
	36-45	4.6	7.1	8.0	0.5	0.7	1.0	22.0
	46-60	8.5	6.6	10.5	2.2	1.0	0.0	28.8
	Above 60	1.7	1.5	2.7	0.7	0.5	0.7	7.8
Income (Taka)	01-5000	18.3	13.9	19.6	3.2	2.9	3.4	61.4
	5001-10000	5.6	6.4	11.0	0.2	1.5	0.7	25.4
	10001-15000	2.7	2.7	3.2	2.0	0.2	0.0	10.8
	15001-20000	0.7	0.5	0.5	0.0	0.0	0.0	1.7
	20001-25000	0.0	0.2	0.2	0.2	0.0	0.0	0.7

V. DISCUSSION AND CONCLUSION

This paper explores the impact of disaster-induced dislocation by analyzing the living conditions and vulnerability of displaced people using the PAR model. The PAR model is employed to examine the social vulnerability associated with the large-scale dislocation of displaced people in the coastal region of Bangladesh. Most studies that use the PAR model focus on the aftereffects of dislocation to explain the suffering of displaced people (Biswas & Anwaruzzaman, 2019; Saha, 2015). The significance of this study lies in its use of the PAR model to understand the causes and consequences of disaster-induced dislocation by comparing the conditions before and after displacement in Bangladesh.

The findings of this study present a comparative picture of vulnerability before and after displacement in the coastal area. Several studies have shown that displacement leads to lives filled with insecurity and uncertainty (Nikuze, 2019; Kabir *et al.*, 2016; Maldonado, 2014; Weber & Peek, 2012; Bankoff, 2003; Huq *et al.*, 2015). This study integrates economic, environmental, and social impact factors to determine the suffering of displaced people using the PAR model. While most studies examine the effects of migration and displacement based on the movement of vulnerable people, this study quantifies the level of vulnerability in terms of new challenges faced in the host area and lifestyle changes, comparing the before and after situation of displacement. The study found that 31% of people leave their homes during disasters, and 18% live in slum areas. In addition, 61.6% have lost their homes and land due to disasters, which forces them to leave their residences. Before the disaster, 61.9% of people were involved in fishing, but this number decreased by 46.3% after displacement. Additionally, displacement led to new occupations for people in urban areas, such as rickshaw

pulling (11%), garment work (5.9%), and day labor (21.9%). This change also affected their income levels and savings. According to the findings, the average annual income of displaced people decreased by 39.9% in the category of less than 5000 BDT, and 22.5% earn less than 10,000 BDT. Furthermore, many displaced individuals have spent their savings for survival, with 31.2% reporting no savings, 19.8% with savings of less than 5000 BDT, 15.1% with savings of less than 10,000 BDT, and 18.8% with savings of less than 15,000 BDT. Additionally, 45.6% of people cannot manage three meals a day in the host area. Due to inadequate water management services in cities like Dhaka, 62.4% of people lack access to safe drinking water, and 3.9% use open areas for sanitation. Furthermore, only 20.5% of people have access to basic health care services due to financial constraints. As a result, they face challenges in managing work (34.4%), shelter (27.4%), food (23.6%), and adjusting to a new community (4.9%) in the host area.

Previous studies primarily focus on the vulnerability of displaced people who move to nearby areas, suburban areas, or urban centers (Chumki *et al.*, 2022; Buchori *et al.*, 2021; Ahmad *et al.*, 2019; Mahdi, 2017; Mallick & Vogt, 2014). In contrast, the findings of this study emphasize the movement of displaced people to urban areas. Kabir *et al.*, (2016) highlighted crucial insights, noting that many of the devastating effects of displacement take a long time to recover from. Similarly, this study discusses the acute vulnerability and challenges faced by displaced people in the aftermath of disasters. It also notes that disaster-induced displacement is a continuous process that reproduces vulnerability, as stability in the lives of displaced people is rarely achieved after displacement.

There were several limitations and challenges in conducting this study. Accessing remote disaster-affected areas was difficult, as only boats were available for transportation.

Locating displaced people in various urban areas also proved to be burdensome. Despite these challenges, the findings provide a rigorous analysis of disaster-induced displacement among coastal populations. The study reveals that the chances of displaced people returning to their homes after a severe natural disaster are low, as all their belongings are uprooted. Nearly 50% of people in disaster-affected areas are displaced after severe disasters such as floods (28.5%), cyclones and storm surges (26.6%), salinity and riverbank erosion (12.9%), and combined cyclone and riverbank erosion (10%). These findings align with previous studies that show how natural disasters contribute to displacement (Mollick *et al.*, 2017; Islam *et al.*, 2017; Paul, 2013; Azad *et al.*, 2013). The study also highlights how displaced people lose their livelihoods and experience basic needs crises, which compel them to resettle in other areas. Previous studies have mentioned that the movement of people is often forced due to these hardships, creating miserable conditions for displaced households (Rahman & Gain, 2020; Hussain, 2013; Mutton & Haque, 2004). Older people, women, and children (57%) are particularly vulnerable during mass displacement. The study suggests that a scarcity of job opportunities, low income, and savings contribute to displacement-induced vulnerability, leading to impoverished circumstances. These challenges impact the living conditions, household structure, and occupational changes in urban areas. Even 67.1% of displaced households cannot manage three meals a day after displacement.

Datta (2018) found that displaced people often manage one or two meals a day, which is somewhat similar to the findings of this study. Due to a lack of funds, many displaced people cannot access health care services, as hospitals in urban areas are expensive. While integration into new economic opportunities may occasionally increase their income, it has little effect on improving their standard of living, as they still live in crowded, resource-constrained conditions. The findings are consistent with previous studies in terms of accessing basic needs in host areas (Sina *et al.*, 2019; Adeagbo *et al.*, 2016; Cox & Perry, 2011). Moreover, due to low educational qualifications, displaced people often lack the necessary knowledge to cope with the adversity of disasters. Half of the displaced population relocates to urban areas in search of job opportunities, replacing traditional occupations. They are displaced three to four times on average due to the severe effects of disasters, which hinders their ability to establish stable lives and livelihoods. Key informant interviews and case studies also revealed that it takes nearly 10 to 15 years to recover losses and build a stable standard of living in the host area. The long recovery period leads to wasted time and resources after displacement, and displaced individuals often live in insecure conditions in the new environment, with fragile social connections. Several push factors, including lack of employment, loss of home, cultivable land, crops, savings, and property, contribute to the decision to dislocate after a disaster. Pull factors such as income opportunities, higher wages, safer living conditions, staying with relatives, and

the possibility of rebuilding homes also attract displaced people to urban areas. The study found that middle-income individuals are more vulnerable as they attempt to maintain their social status, often leading to criminal activities or begging. Pregnant women also suffer disproportionately during displacement due to reproductive health issues. Thus, landlessness, joblessness, homelessness, food insecurity, marginalization, loss of access to common property resources, increased morbidity, and community disintegration all contribute to the vulnerability of displaced people (Mallick & Vogt, 2014).

All of these socio-economic constraints create poverty and hinder social cohesion (Terminski, 2012; Nikuze *et al.*, 2019). This vulnerability leads to social exclusion, insecurity, defencelessness, and various risks. It fosters social and economic disparity, as displaced people are often not properly included in government service provisions (Mollick & Vogt, 2014). Furthermore, they lack the training necessary to rebuild their livelihoods and property. Repeated disaster-induced dislocation perpetuates social and economic vulnerability, as displaced people rarely experience stability in their resettlement. This process continuously reproduces vulnerability for disaster-affected populations.

In conclusion, disaster-induced dislocation has a significant impact by increasing suffering, which perpetuates the cycle of displacement-induced risk and social deprivation. This study contributes to understanding how disaster-induced displacement causes social vulnerability for coastal populations in Bangladesh. The findings highlight the impact of displacement, including vulnerabilities, insecurity, social distress, uncertainty, and impoverishment. The study provides a comparative analysis of the social vulnerability of displaced people before and after displacement using the PAR model, offering valuable insights for researchers, policymakers, and practitioners seeking to reduce large-scale dislocation and alleviate the suffering of displaced people. However, there are still several economic, political, and cultural impacts of displacement that need further investigation. Future research could focus on these factors, utilizing the outcomes of this study, to address the social vulnerability of displaced populations more effectively. This research could contribute to enhancing disaster risk management knowledge and policy development, emphasizing the need for policies that better support displaced people by reducing vulnerability and adapting to disaster risks.

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