

Disability-Inclusive Disaster Risk Reduction and Climate Change Adaptation in Bangladesh: A Scoping Review

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ABSTRACT: This paper presents a scoping review of disability-inclusive disaster risk reduction (DiDRR) and climate change adaptation (DiCCA) in Bangladesh covering the period 2009–2025. The review examined national policy frameworks, peer-reviewed studies, and grey literature to assess the extent of disability inclusion. Searches were conducted in Google Scholar, Scopus, and PubMed, alongside institutional sources from the Ministry of Disaster Management and Relief (MoDMR), Department of Disaster Management (DDM), Ministry of Environment, Forest and Climate Change (MoEFCC), UN agencies, and NGOs. A total of 105 documents were systematically reviewed and mapped. Findings indicate slow, iterative, and uneven progress. Disability inclusion has been formally acknowledged in the Standing Orders on Disaster (SOD), Disaster Management Act (2012) and the National Plan for Disaster Management (2021–2025), both of which reference engagement with Disabled People’s Organizations (DPOs) and inclusive preparedness measures. The Rights and Protection of Persons with Disabilities Act (2013) also establishes a legal foundation for rights-based approaches, yet its operational linkage to climate and disaster planning remains weak. Adaptation documents such as the Bangladesh Climate Change Strategy and Action Plan (2009) and the National Adaptation Plan (2023–2050) employ broad notions of “vulnerable groups” but fail to integrate disability-specific strategies, indicators, or budgetary mechanisms. Persistent weaknesses include insufficient accessibility in cyclone shelters, limited recognition of intersectional vulnerabilities (children, women, elderly, and rural residents with disabilities), and the absence of disability-disaggregated data to inform planning and monitoring. The paper recommends a shift towards mandatory disability-inclusive clauses in adaptation and disaster policies, systematic accessibility audits of critical infrastructure, strengthened engagement with DPOs, and investment in disaggregated data collection.

Keywords: Disability; Disaster Risk Reduction; Climate Change Adaptation; Intersectionality; Vulnerability; Inclusion; Policy

INTRODUCTION

Bangladesh is highly exposed to climate hazards, including cyclones, riverine and flash floods, coastal erosion, and salinity intrusion, which significantly affect vulnerable populations. Persons with disabilities experience amplified risks due to structural, social, and environmental barriers, compounded by pre-existing inequalities such as poverty, limited education, and gender-based discrimination. Inadequate infrastructure, including inaccessible shelters, absence of ramps, insufficient assistive facilities, and poorly designed evacuation routes, further constrains their capacity to respond to and recover from disasters (Nuri et al.,

2022; Farid & Nasreen, 2023). These factors intersect to create differentiated vulnerabilities, particularly for women, children, and elderly persons with disabilities in rural and marginalized communities, highlighting the need for intersectional approaches in disaster risk reduction and climate change adaptation.

Inadequate infrastructure amplifies these vulnerabilities. Many cyclone and flood shelters lack ramps, accessible toilets, handrails, or other assistive features, which significantly restrict safe evacuation for persons with disabilities. Similarly, health facilities and community centers often do not accommodate assistive devices or specialized communication needs, leaving disabled populations at risk during emergencies (Rahman et al., 2020). In combination, these infrastructural deficits, when paired with systemic social inequalities, reproduce inequities and limit the capacity of national adaptation and disaster response measures to be truly inclusive (Farid et al., 2024; Nuri et al., 2022).

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Institutionally, disaster risk reduction (DRR) and climate change adaptation (CCA) in Bangladesh are primarily coordinated through the Department of Disaster Management (DDM) under the Ministry of Disaster Management and Relief (MoDMR) and the Ministry of Environment, Forest and Climate Change (MoEFCC). The DDM is responsible for national preparedness, response, and recovery mechanisms, whereas the MoEFCC oversees climate policy, strategic planning, and adaptation programming. Several national policy documents—including the Bangladesh Climate Change Strategy and Action Plan (BCCSAP, 2009), the National Adaptation Plan (NAP 2023–2050), the National Plan for Disaster Management (NPDM, 2021–2025), and the Nationally Determined Contributions (NDCs)—contain references to marginalized groups; however, explicit measures for integrating disability remain limited and largely rhetorical (MoEFCC, 2023; MoDMR, 2021; Farid & Nasreen, 2023). The interaction of pre-existing social inequalities and deficient infrastructure with disability results in compounded exclusion from early-warning systems, climate-resilient housing, and community-based preparedness programs, emphasizing the need to view adaptation not merely through hazard exposure but also through socio-structural vulnerabilities.

This paper examines the extent to which national policy documents and institutional practices integrate disability inclusion, particularly in the context of DRR and CCA. It investigates how the policy framework aligns with international standards, such as the Convention on the Rights of Persons with Disabilities (CRPD) and the Sendai Framework for Disaster Risk Reduction, and identifies implementation gaps at both governmental and community levels. The research critically considers how intersectionality, especially the interaction of disability with gender, socioeconomic status, and geographic location affects the vulnerability and adaptive capacity of affected populations. The analysis also interrogates how infrastructural deficiencies and service gaps limit the effectiveness of adaptation and disaster management initiatives, revealing systemic barriers that exacerbate climate risk for marginalized groups.

The review is guided by questions on the extent and nature of disability inclusion in major DRR and CCA policy documents from 2009 to 2025, their alignment with international frameworks, key implementation

barriers, and future priorities. These questions are examined through a secondary review of peer-reviewed studies, government reports, and grey literature, which supports a critical synthesis of policy commitments and practice in Bangladesh (Hossain et al., 2023; Rahman & Chowdhury, 2022; UNDP, 2022).

By situating disability inclusion within the intersecting challenges of pre-existing inequalities and inadequate infrastructure, this paper critically assesses the systemic constraints, policy gaps, and evidence deficits that shape adaptation outcomes. The analysis illuminates how existing DRR and CCA frameworks can either reinforce or mitigate exclusion and identifies opportunities for policy, institutional, and community-level interventions to strengthen inclusive climate resilience and disaster preparedness.

METHODOLOGY

This study employs comprehensive secondary sources analysis to examine the overall status quo of DiDRR and DiCCA alongside how persons with disabilities are incorporated into climate change adaptation and disaster risk reduction policies and programs in Bangladesh. The methodology involves a systematic review of peer-reviewed literature, government policy documents, strategic reports, and grey literature produced by national and international organizations, with attention to both institutional frameworks and operational practices. Analysis emphasizes the identification of policy gaps, implementation challenges, and opportunities for enhancing disability-inclusive climate adaptation and disaster management.

Research Design and Search Strategy

This study adopts a scoping review and policy analysis design, guided by the PRISMA-ScR framework (Tricco et al., 2018). The review mapped existing evidence on disability inclusion in DRR and CCA in Bangladesh. It incorporated both peer-reviewed literature and grey literature, including government policy documents, reports from international organizations, and reports by DPOs.

Timeframe and Language Scope

The review covered materials published between 2009 and 2025, beginning with the Bangladesh Climate

Change Strategy and Action Plan (BCCSAP-2009). Both English and Bangla sources were included.

Databases and Data Sources

Searches were conducted in majorly Google Scholar, Scopus, PubMed, and JSTOR for academic publications. Grey literature was identified through the official websites of the MoDMR, DDM, MoEFCC, Ministry of Social Welfare, and repositories of UNDRR, UNICEF, WHO, World Bank, BRAC, and the Centre for Disability in Development (CDD).

Sample Search Strings (Boolean operators) were as per follows:

1. (“disability” OR “persons with disabilities” OR “PwD”) AND (“disaster” OR “DRR” OR “resilience”) AND (“Bangladesh”).

2. (“disability inclusion”) AND (“climate change” OR “adaptation” OR “CCA”) AND (“Bangladesh”).
3. (“disabled” OR “vulnerable groups”) AND (“cyclone” OR “flood” OR “evacuation”) AND (“Bangladesh”).
4. (“CRPD” OR “Sendai Framework”) AND (“disability”) AND (“Bangladesh”).
5. (“policy” OR “strategy” OR “plan”) AND (“disability” OR “inclusive”) AND (“disaster management”) AND (“Bangladesh”).

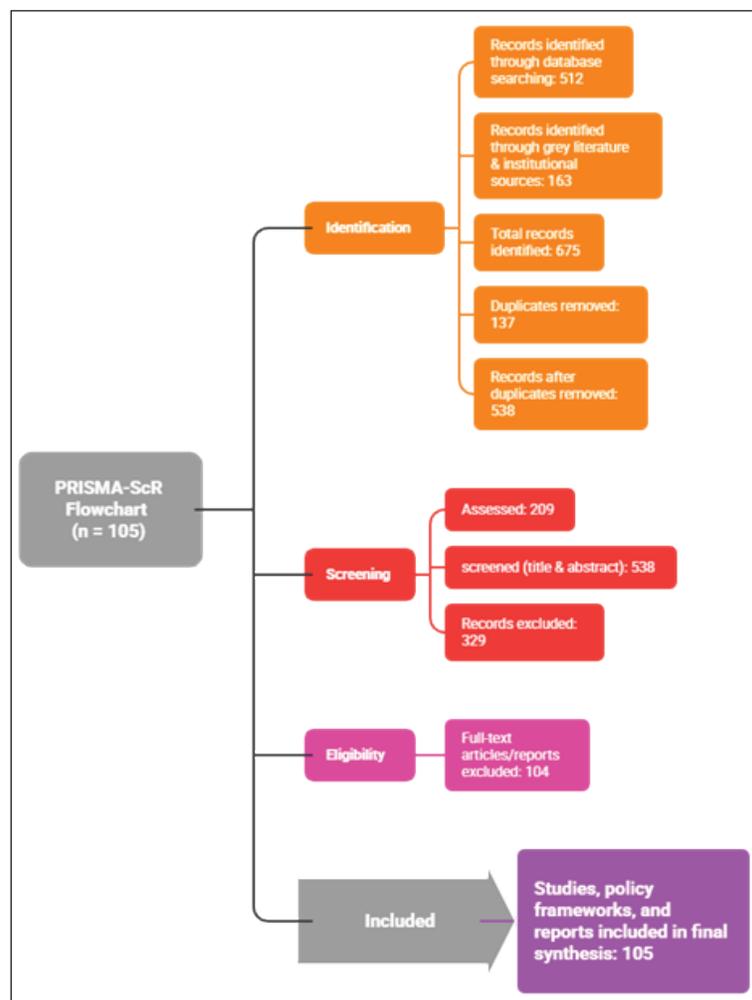


Figure 1: PRISMA-ScR Flow Chart Illustrating the Full Selection Process of 105 Literature Sources

Screening and Selection

A total of 675 documents were identified across databases and grey literature sources. After removing 137 duplicates, 538 unique records were screened through titles and abstracts. Of these, 329 were excluded for lack of relevance, leaving 209 documents for full-text assessment. After applying inclusion and exclusion criteria, 105 sources were retained for full analysis. The selection procedure followed two stages:

- **Stage 1:** Title and abstract screening to exclude irrelevant documents.
- **Stage 2:** Full-text review based on pre-determined inclusion/exclusion criteria.

Inclusion Criteria: Peer-reviewed articles, government policies/acts/plans, NGO/DPO reports, donor reports, and theses that addressed disability within DRR/CCA in Bangladesh.

Exclusion Criteria: Literature focused solely on medical rehabilitation or clinical aspects without relevance to DRR/CCA, and global/regional reports without a Bangladesh-specific dimension.

All retrieved documents were independently screened in two stages by the author. A PRISMA-ScR flow chart that illustrates the full selection process is given above (Fig. 1).

Data Extraction

A structured template was applied with the following fields: author, year, document type, title, source, ministry/organization, explicit reference to disability, intersectionality aspects (gender, age, and ethnicity), implementation mechanism, geographic coverage, and relevance to DRR/CCA.

Quality Appraisal

No formal critical appraisal tool was applied to grey literature. Instead, credibility was assessed by source authority (e.g., government ministry, UN agency, recognized NGO), year of publication, and transparency of methods.

Data Analysis

A hybrid coding approach was applied: deductive codes

were derived from international frameworks (Sendai Framework, CRPD, SDGs), and inductive codes were developed during document review. A pilot set of ten documents was used to refine the codebook, which was then applied to the full dataset.

The final dataset of 105 sources was coded in two rounds. To ensure reliability, intercoder checks were applied to 20% of documents, yielding an agreement rate of 85% (section 7.5.3 of Appendix E).

For policy mapping, each document was systematically assessed against three benchmarks:

- Sendai Framework priorities (understanding risk, governance, investment, preparedness).
- CRPD articles, particularly Article 11 (situations of risk and humanitarian emergencies) and Article 19 (living independently and being included in the community).
- National SDGs, particularly SDG 13 (climate action) and SDG 10 (reduced inequalities).

A four-point scoring rubric was applied:

- **0** = no mention of disability,
- **1** = implicit mention (e.g., reference to “vulnerable groups”),
- **2** = explicit mention of disability,
- **3** = explicit mention with implementation mechanisms.

For example, the *National Plan for Disaster Management 2021–2025* explicitly mentions disability in relation to inclusive early warning systems (score = 2) and specifies coordination with Disabled People’s Organizations (DPOs) for shelter management (score = 3).

Triangulation, Sensitivity Checks, and Reproducibility

To strengthen validity, findings from academic literature were triangulated with policy documents and reports by NGOs and DPOs. For instance, evidence of accessibility challenges during cyclone evacuations reported by NGOs was compared with government shelter design guidelines. The frequency of disability references across documents was treated cautiously; counts were contextualized against the quality and implementation relevance of the mention.

Ethical Considerations

The study relied exclusively on publicly available documents and did not involve human participants. Therefore, no institutional review board approval was required. All materials were cited appropriately to respect intellectual property. Where grey literature included personal communications or unpublished drafts, prior consent was sought before citation.

Limitations

This review acknowledges several limitations:

- Reliance on secondary literature and policy documents, without primary field data or interviews. This limits the capacity to assess lived experiences of persons with disabilities.
- Potential bias in grey literature where NGO or donor reports may emphasize success stories while underreporting challenges.
- Uneven regional coverage, as some documents focus primarily on coastal Bangladesh, with limited attention to char or hill tracts.
- Language limitation, since most searches prioritized English, though some Bangla documents were included.
- Policy–practice gap: Policy texts often articulate inclusion but lack evidence of implementation. This was partially mitigated by triangulating with NGO and DPO reports.

The study finally analyzed 72 documents, which strengthens reliability but still excludes field perspectives. Therefore, future studies which will employ primary data to in the same subject matter should include consultations with the DDM, MoEFCC, and DPOs to validate findings and explore real-world implementation.

DISABILITY INCLUSION IN DISASTER RISK REDUCTION IN BANGLADESH

Intersectionality and Vulnerability

Intersectionality, a concept originating in feminist legal theory by Crenshaw (1989), serves as a necessary

lens in disaster studies for understanding overlapping vulnerabilities. In Bangladesh, disability intersects with age, gender, rurality, poverty, and social exclusion, which exacerbates disaster risk.

Children with disabilities in coastal districts experience heightened barriers to evacuation and post-disaster services. Molla et al. (2019) demonstrate this reliance on caregivers who may possess mobility constraints. Shelters and emergency relief rarely make provisions tailored to their needs (Farid et al., 2024). The National Plan for Disaster Management (NPDM 2021–2025) lacks explicit operational guidelines for safeguarding children with disabilities, creating a gap between legal recognition and practice.

Women with disabilities face heightened risks of sexual and gender-based violence (SGBV) during cyclones and floods. Gartrell et al. (2020) document a higher likelihood of abuse and harassment in shelters, compounded by inadequate privacy, inaccessible sanitation, and limited female staff. These risks are not adequately addressed in the Disaster Management Act (2012) or the NPDM 2021–2025.

Older adults with disabilities often face compounded risks due to mobility and communication barriers. According to HelpAge International (2019) and Farid et al. (2025), elderly persons with hearing or vision impairments frequently fail to receive timely early warning messages. Community-based disaster committees rarely maintain updated registries, further marginalising them during evacuation. To illustrate the degree to which intersectional vulnerabilities are reflected in key disaster plans, the following table is presented:

This absence of intersectional guidance results in ad-hoc responses rather than systematic planning. Concrete corrective steps include inserting protection clauses in cyclone shelter SOPs to address SGBV risks for women with disabilities, mandating age-disaggregated registries of persons with disabilities, and piloting child- and elderly-focused evacuation protocols (MoDMR, 2025).

Table 1: Disability and Intersectional Inclusion in Key National Disaster Plan Documents of Bangladesh

Policy Document	Mentions Disability?	Mentions Intersectionality Specifically?	Remarks
Disaster Management Act 2012	Yes (general)	No	Provides a general, protective reference to “vulnerable” and “disadvantaged” groups, including persons with disabilities, women, children, and the elderly. It lacks specific, actionable measures or disaggregated plans for each group.
NPDM 2021–2025	Yes (general + DPO engagement)	Limited (gender, separate, disability)	A few linkages are found. However, aligns more closely with the Sendai Framework by explicitly mentioning disability and the need for engagement with Disabled Persons’ Organizations (DPOs). While it references both gender and disability, they are often treated as separate issues, with limited linkages between them.

Legal Frameworks and Policy Implementation

Bangladesh has enacted a number of policy instruments relevant to disability inclusion. However,

implementation remains limited, fragmented, and poorly monitored. The following table provides a structured policy mapping:

Table 2: Policy Mapping of Disability-Inclusive Frameworks in Bangladesh with Implementing Evidence and Gaps

Policy/Instrument	Year	Lead Agency	Disability Reference	Implementation Evidence	Concerns
Rights and Protection of Persons with Disabilities Act	2013	MoSW	Explicit rights language	Weak enforcement, urban bias	No link to DRR
Disaster Management Act	2012	MoDMR	“Persons with special needs” referenced	General guidelines issued	No detailed operationalisation
NPDM	2021–2025	MoDMR/DDM	Disability & DPO engagement referenced	Training modules developed	No indicators/monitoring

Sources: (GoB, 2012; GoB, 2013; MoDMR, 2020)

Exact language from the Rights and Protection of Persons with Disabilities Act (2013, p. 5) affirms that “all persons with disabilities shall have equal rights in all spheres of state and public life,” yet this is not operationalised in disaster management protocols (GoB, 2013). Mannan (2021) highlight lack of coordination between MoSW and MoDMR as a barrier. Decentralisation challenges mean that city corporations and Union Disaster Management Committees rarely integrate disability perspectives without external NGO support. Strengthening implementation requires clear

assignment of responsibilities to DDM, budgetary allocations for disability-inclusive DRR, incorporation of disability indicators into monitoring frameworks, and mandatory participation of Disabled People’s Organisations (DPOs) in policy-review committees (Farid et al., 2025).

Gender and Disability

Evidence consistently shows women with disabilities experience amplified risks in disaster contexts. Gartrell

et al. (2020) report women with mobility impairments are more vulnerable to harassment in cyclone shelters due to lack of privacy and inaccessible toilet facilities. Ainul et al. (2022) confirm heightened exposure to SGBV risks during displacement. The NPDM 2021–2025 and DM Act 2012 do not contain gender-specific protections for women with disabilities.

Bangladesh-specific studies remain scarce. Anecdotal evidence from coastal Khulna and Barguna suggests women with visual impairments often avoid shelters due to anticipated harassment, increasing their disaster mortality risk (Ahmed & Nath, 2024). Policy interventions should extend general “gender” clauses to include specific provisions for marginalized groups. The establishment of separate and accessible spaces for women with disabilities in cyclone shelters ensures their safety and dignity (Sightsavers, n.d.).

The training of female shelter wardens in disability awareness is imperative. The integration of confidential SGBV reporting and referral pathways is a critical intervention, as the risk of SGBV is heightened in emergency settings (Farid et al., 2025; IFRC, 2022). Furthermore, integrate psychosocial and social-protection services into shelter Standard Operating Procedures (SOPs). Mandatory gender-disability sensitivity training should be required for all Disaster Management Committee members. Regular audits of shelters are necessary to track and enforce accessibility and gender-sensitive provisions (Chowdhury & Fileborn, 2020). Progress should be measured through indicators such as the percentage of shelters with female-only accessible facilities and reporting rates of SGBV cases linked to sheltering (Chowdhury & Fileborn, 2020; Farid et al., 2024).

Household-Level Dimensions of Vulnerability and Decision-Making

Empirical evidence from coastal and flood-prone regions of Bangladesh shows that households that include persons with disabilities face layered constraints that shape preparedness, evacuation capacity, and recovery prospects. Field studies in Southkhali Union and similar areas document chronic poverty, limited livelihood choices, and reliance on assistive devices that are costly and unavailable locally. These conditions weaken readiness for storms and floods (Mostofa, 2022; C3ER/BRAC–CDD, 2022). Qualitative interviews

and survey findings report delays in evacuation because devices could not be transported or because caregivers lacked funds for accessible travel (Mostofa, 2022; C3ER/BRAC–CDD, 2022). Economic shocks linked to COVID-19 reduced resilience. National and programme-level assessments observe declines in informal earnings, disrupted remittances, and restricted access to maintenance and health services (UNDP Bangladesh, 2021; Thompson et al., 2023).

Community studies report that disability-related needs are often treated as secondary, which results in exclusion from planning and livelihood decisions (Mostofa, 2022; C3ER/BRAC–CDD, 2022). Programme monitoring notes similar tendencies (CDD/CBM DiCCA project reporting, 2020–2022). Targeted social-protection linkages, conditional livelihood support, and behaviour-change communication have recorded positive outcomes (UNDP Bangladesh, 2021; C3ER/BRAC–CDD, 2022).

Disproportionate Effects Particularly on Women with Disabilities

Women with disabilities face distinct and heightened risks during disasters that exceed those documented for other groups with disabilities. Gartrell et al. (2020) report increased mortality and higher exposure to SGBV among women with disabilities in post-disaster contexts. These outcomes are shaped by gender norms that assign women to caregiving roles, restricting their mobility and limiting opportunities to evacuate. Reduced financial independence and constrained physical capacity further limit their ability to respond to hazardous events.

The intersection of gender and disability produces compounded disadvantage that requires focused intervention. National institutions have recognised this need, with the Department of Disaster Management calling for a human rights-based approach to strengthen resilience for persons with disabilities (UNDP, 2020; Azad & Pritchard, 2023). Effective policy requires gender-sensitive strategies that address barriers faced by women with disabilities throughout preparedness, response, and recovery.

Key measures include secure environments within shelters, protection protocols, and reliable access to essential resources and services. Strengthening participation of women with disabilities in preparedness

and response initiatives helps address gaps in planning and implementation (Crawford et al., 2023). Such measures support the wider goal of reducing disproportionate risk and ensuring that disaster-governance systems respond to gendered constraints.

Elderlies with Disabilities

Elderlies or older adults represent a disproportionately vulnerable group during disasters in Bangladesh. Farid and Nasreen (2023) found elderly persons with mobility limitations were frequently left behind during cyclone evacuations because transportation did not accommodate assistive devices. HelpAge International (2024) notes caregivers are seldom integrated into evacuation logistics, increasing mortality risk for persons with high dependency.

Communication barriers possess equal significance. Warnings disseminated via SMS or loudspeaker often fail to reach hearing-impaired older persons, especially in rural areas with weak mobile connectivity. Braille and visual sign systems are absent from emergency communication protocols (MoEFCC, 2025).

The NPDM 2021–2025 makes no reference to older adults with disabilities in its early warning or evacuation sections, though global frameworks (Sendai Framework 2015–2030) urge attention to this group (UNDRR, 2015). The Disaster Management Act 2012 lacks clarity on operationalisation for “persons with special needs.” Policy improvements should include: priority evacuation lists; dedicated shelter spaces; guidelines for transporting medical equipment; and development of accessible early-warning formats (Malak et al., 2025).

Impact on Children with Disabilities

Children in Bangladesh are highly exposed to climate hazards, with an estimated 20 million facing risks from floods, cyclones, and droughts (UNICEF, 2018). Individual events further illustrate this vulnerability; the 2022 flash floods affected 7.2 million people, including large numbers of children (UNICEF, 2022). Cyclone Remal in 2024 placed over 2 million children at risk (Save the Children, 2024). Data from the 2024 northeastern floods show that 37,219 individuals with disabilities were affected, and UNICEF case management enrolled hundreds of cyclone-affected children with disabilities (UNICEF, 2024).

The combined effects of climate events, conflict, and landmine incidents are likely to increase the number of children developing disabilities. Children with disabilities encounter specific difficulties during disasters, including requirements for specialised care, tailored evacuation support, and adapted shelter services. Disaster plans rarely incorporate these needs adequately, resulting in additional marginalisation and increased exposure to harm (Farid et al., 2024; Al Imam et al., 2022).

Educational disruption, interruptions in therapeutic support, and absence of appropriate facilities in shelters can generate long-term developmental setbacks. Policies must place priority on the inclusion of children with disabilities within preparedness and response frameworks. These policies should ensure customised interventions, early support during displacement, and consistent access to education throughout crisis periods (Al Imam et al., 2022; Nuri et al., 2022). Such measures reduce risk and help maintain continuity in developmental progress.

Pre-existing Inequities

Pre-existing societal disparities intensify the vulnerability of individuals with disabilities during disasters. These disparities restrict access to aid, trauma care, and relief services, forming a cycle of disadvantage (Barua & Molla, 2019). Social prejudice and negative attitudes, particularly in isolated areas, heighten exclusion. Gender discrimination and violence remain major concerns in Bangladesh, and individuals with disabilities often face additional barriers.

Women with disabilities encounter further restrictions in gaining access to essential resources and services due to discriminatory norms that limit mobility and autonomy (Chowdhury & Sapkota, 2022). Emergencies frequently exacerbate gender-based violence as social structures weaken under pressure. Restricted physical mobility and entrenched prejudice increase susceptibility to abuse during crises (Barua & Molla, 2019; UN Women, 2023).

Gender-sensitive strategies remain necessary within disaster-risk-reduction policies. These include access to secure shelters, legal aid, and psychosocial support for women with disabilities before, during, and after emergencies (Farid et al., 2025). Efforts to shift societal

perspectives on disability are equally important. Such efforts can strengthen recognition of rights and promote engagement of individuals with disabilities in all phases of disaster preparedness and response (Chowdhury & Sapkota, 2022).

Safety Concerns in Cyclone Shelters

Cyclone shelters across coastal Bangladesh remain inaccessible for many persons with disabilities. Recent assessments identify barriers in physical layout, site selection, and management arrangements that limit safe use. Field evaluations describe uneven routes, stair-only entrances, steep ramps, and limited caregiver-support structures (Ahmed et al., 2024; Hasan et al., 2024). Studies led by disability-focused organisations also note the absence of private spaces, restricted WASH accessibility, and limited options for confidential SGBV reporting, which discourages shelter use during emergencies (CDD/BRAC DiCCA study, 2022; Thompson et al., 2023).

National policy documents mention inclusion, yet operational guidance is still narrow. The SOD 2019 and NPDM 2021 to 2025 outline social inclusion goals but lack detailed standards or clear audit processes (SOD 2019; NPDM 2021–2025). Shelter Cluster guidance lists common accessibility issues, though Bangladesh still lacks a centralised national audit system.

Field evidence reports blocked routes, shared dormitories without privacy partitions, inaccessible WASH facilities, and limited storage for assistive devices and medicines. These constraints lower shelter use and increase exposure to disaster impacts (Ahmed et al., 2024; Hasan et al., 2024; C3ER/BRAC–CDD, 2022). Programmatically, a shelter standard operating procedure for disability inclusion should specify:

- 1) A physical-access checklist (level access or compliant ramps, door widths, accessible WASH, safe assistive device storage),
- 2) Management actions (trained shelter staff and volunteers on disability awareness and SGBV prevention; confidential SGBV referral pathways that are accessible to persons with disabilities), and
- 3) Logistics processes (pre-registering households with persons with disabilities, permitted caregiver registration, and plans to transport essential assistive devices and medicines with evacuees).

Pilot audits show that low-cost retrofits can be scaled with targeted funding and simplified procurement (Ahmed et al., 2024; Hasan et al., 2024; C3ER/BRAC–CDD, 2022).

Role of Occupational Therapists

Rehabilitation professionals, including occupational therapists, contribute specialised expertise that strengthens inclusive preparedness, shelter management, evacuation assistance, and recovery services. Survey-based research with occupational therapists in Bangladesh shows adaptations during health-system shocks such as tele-rehabilitation, expanded caregiver training, and prioritised device provisioning (Rahman et al., 2022). International reviews and WHO guidance highlight the value of integrating rehabilitation within emergency health services since early rehabilitation improves functional outcomes for disaster-affected populations, including individuals with pre-existing disabilities (Amatya, 2023; WHO, 2023/2024).

Operational roles include preparedness training for volunteers and shelter managers, pre-positioning assistive-device kits at local levels, deployment of mobile rehabilitation teams, and participation in multi-sectoral assessments. Institutional roles involve the Ministry of Health, the Ministry of Social Welfare, and the Ministry of Disaster Management and Relief (Rahman et al., 2022; Amatya, 2023; Gosling et al., 2024). Recommended measures include a divisional roster, pre-positioned device kits, and rehabilitation metrics within assessments. Evidence from Bangladesh indicates feasibility with targeted funding and formal coordination (Rahman et al., 2022; Amatya, 2023; Gosling et al., 2024).

Research Gaps

Disaster research frequently identifies children and persons with disabilities as highly vulnerable groups. However, these populations are often examined through separate research streams, creating two parallel lines of inquiry (Onyejesi et al., 2025). Growing attention to children's vulnerability has not been matched by equivalent empirical work on persons with disabilities (Farid et al., 2025). Existing studies mostly prioritise adults, which results in limited understanding of the specific needs of children with disabilities (Behnassi et al., 2021). This gap restricts the development of

effective preparedness and response plans for this group (Onyejesi et al., 2025).

Evidence from Bangladesh remains sparse, and this limits policy formulation (Nuri et al., 2021; Saha and Khan, 2021). Gaps in disaggregated data within the National Adaptation Plan and Nationally Determined Contributions also constrain program design within the Ministry of Environment, Forest and Climate Change (Rahman et al., 2023). Stronger advocacy for systematic data practices, participatory policy processes, and coordinated action among government agencies, NGOs, and DPOs is needed to improve DiDRR and DiCCA initiatives (Farid et al., 2025).

Integration of child-centered DRR within disability-inclusive policies is important, as children with

disabilities face distinct risks that remain insufficiently addressed (Onyejesi et al., 2025). Further research on intersections of disability, gender, age, and socioeconomic conditions is necessary to support interventions that respond to complex and layered forms of marginalisation (UNDRR, 2022).

Taken together, these findings highlight the need for systematic research coordination between academic institutions and policy agencies. The following table summarizes the main themes, challenges, and policy responses in DiDRR in Bangladesh, mapping evidence from literature and national policy documents such as NPDM 2021–2025 and SOD 2019. Each subtheme indicates the level of policy attention, showing where inclusion is explicit, implicit, or absent.

Table 3: Disability-Inclusive DiDRR: Themes Mapped to Sources and Policy Coverage

Themes	Subtheme	Key points (concise)	Policy coverage (Explicit / Implicit / Not mentioned; which document)
Disability inclusion in DiDRR in Bangladesh	Intersectionality & vulnerability	Disability intersects with gender, age, poverty to create compounded risk for children, women, elderly, rural groups.	Implicit — NPDM 2021–2025 / SOD 2019 mention inclusion but lack specific operational intersectional guidance.
Older adults / elderlies with disabilities	Communication & mobility barriers	Older adults with impairments face evacuation, communication and caregiving challenges.	Implicit — SOD 2019 mentions elderly; few operational SOPs specific to older adults.
Legal frameworks & policy implementation	Rights & legislation vs implementation	Laws exist (Disability Act 2013, SOD 2019, NPDM 2021–25) but implementation, monitoring and budgets weak.	Explicit in law; Implementation weak — monitoring gaps identified in NPDM reviews.
Gender & disability	SGBV risk and exclusion	Women with disabilities face heightened risk of SGBV in emergencies and barriers to safe sheltering.	Implicit — SOD 2019 and NPDM reference gender; disability-gender operational measures limited.
Household vulnerabilities & perceptions	Poverty, apathy, evacuation decisions	Households deprioritise disability needs; COVID shocks worsened material capacity.	Not mentioned/implicit — social-protection linkages discussed in NPDM but disability-targeting inconsistent.
Safety in cyclone shelters	Access, privacy, staff capacity	Physical access deficits, lack of privacy and secure female spaces, no device storage.	Implicit — SOD 2019 & NPDM 2021–25 include inclusion language; operational accessibility checklist absent or unevenly applied.
Role of occupational therapists	Rehabilitation, device repair, training	OTs can preposition kits, lead rehab teams, train shelter staff, support functional recovery.	Not mentioned explicitly in disaster SOPs; some health guidelines suggest rehabilitation but integration is limited.

(Source: Author)

DISABILITY INCLUSION IN CLIMATE CHANGE ADAPTATION IN BANGLADESH

Overview of Current Policies and Progress

Disability inclusion in climate change adaptation policy in Bangladesh shows gradual movement but still reflects inconsistency in framing and execution. Over the past fifteen years, national documents have addressed vulnerability in broad terms without detailed attention to disability and intersectionality. The Bangladesh Climate Change Strategy and Action Plan (BCCSAP 2009) remains central yet omits disability entirely. The National Adaptation Programme of Action (NAPA 2005; updated 2023) focuses on sectoral issues such as water and agriculture without disability guidance.

Recent frameworks add limited progress. The National Adaptation Plan (NAP 2023–2050) introduces socially inclusive adaptation but does not integrate accessibility into health or housing measures (MoEFCC, 2023). Analysts note a gap between broad vulnerability framing and actionable plans with budget allocation (Islam and Nath, 2023; UNDP Bangladesh, 2022). The

Rights and Protection of Persons with Disabilities Act 2013 acknowledges legal rights but does not extend to climate adaptation.

The National Plan for Disaster Management (NPDM 2021–2025) aligns with Sendai principles and refers to disability inclusion, though implementation at local level remains weak. Shelters in coastal districts remain inaccessible, and DPO engagement in community adaptation is limited (Farid and Nasreen, 2023; UNDP Bangladesh, 2022). Social protection support is often insufficient, and post cyclone recovery rarely restores assistive devices (Nuri et al., 2022). The ccGAP 2024 advances gender sensitive adaptation but overlooks disability (UN Women, 2024; UN Women, 2023; UNDP, 2024). Budget consultations for FY 2024–25 highlighted gaps in financing for women with disabilities (UN Women, 2024). A clear trend emerges in which disability inclusion is marginal. National mechanisms such as the Bangladesh Climate Change Trust Fund and Climate Fiscal Framework have scope to integrate disability indicators within adaptation financing.

Table 4: Overview of Current Policies and Progress on Disability Inclusion in Climate Change Adaptation in Bangladesh

Policy / Plan	Goals / Objectives	Disability and Overall Inclusion Status	Progress and Critical Reflections (CCA/DRR context)
National Adaptation Plan (NAP) (2023–2050)	Advance climate-resilient development by reducing risks and vulnerabilities through sectoral adaptation (water, agriculture, DRR, urban resilience, ecosystems).	<ul style="list-style-type: none"> • Limited gender and disability inclusion frameworks. • Few gender-disaggregated indicators for adaptation programs. • Weak consideration of persons with disabilities and marginalised groups. 	NAP marks an important shift toward long-term, programmatic adaptation but remains overly technocratic. Social vulnerability and intersectional risks are not mainstreamed, which may limit effectiveness in protecting marginalised communities.
Bangladesh Climate Change Strategy and Action Plan (BCCSAP) (2009)	Enhance resilience through sectoral adaptation, institutional strengthening, and knowledge sharing (with focus on agriculture, water, DRR).	<ul style="list-style-type: none"> • Lacks dedicated disability-transformative initiatives. • Minimal indicators for disability inclusion. • Weak engagement of disabled groups. 	As the earliest framework, BCCSAP was groundbreaking but dated. While it identified “vulnerable populations,” it did not specify mechanisms for gender/disability inclusion. Many funded activities treated inclusion as secondary rather than central.

Mujib Climate Prosperity Plan (MCP) (2021–2041)	Drive economic resilience through green growth, renewable energy expansion, financial innovation, and local capacity building.	<ul style="list-style-type: none"> • Highlights finance and growth but pays limited attention to gender-responsive adaptation. • Few explicit provisions for marginalised groups. 	MCP is progressive on green investment but risks overlooking the differentiated vulnerabilities of women, elderly, and disabled populations. Equity and empowerment are underdeveloped compared to economic goals.
Bangladesh Delta Plan (BDP) 2100	Establish long-term water management, coastal flood control, and land-use adaptation to promote resilient socio-economic growth.	<ul style="list-style-type: none"> • No disability-specific adaptation targets. • No focus on disability participation or intersectional inclusion. • Weak recognition of social marginalisation. 	BDP prioritises infrastructure-heavy interventions (embankments, flood control), which may exclude socially disadvantaged groups from planning processes. Risks of reinforcing existing inequalities are high without corrective measures.
Perspective Plan of Bangladesh (2021–2041)	Provide a 20-year development roadmap integrating economic growth with climate resilience, CSA, and sectoral early warning.	<ul style="list-style-type: none"> • Minimal provisions for gender transformation. • Overlooks disability inclusion. • Broad reference to “vulnerable groups” without specificity. 	The plan is forward-looking on economic integration but insufficiently linked with inclusive adaptation. Without explicit gender- and disability-responsive metrics, risks of policy blind spots remain.
Bangladesh Climate Change Gender Action Plan (ccGAP) (2024)	Prioritise gender-responsive adaptation and mitigation; enhance women’s climate leadership and decision-making; address specific climate vulnerabilities of women and marginalised groups.	<ul style="list-style-type: none"> • Strongest policy on gender inclusion to date. • Targets women and girls but limited intersectional focus (elderly, disabled, and minority women). • Gaps in transformative empowerment metrics in terms of disability inclusion. • Some projects infused gender equality, but inclusion remains inconsistent in terms of disability inclusion. 	ccGAP is a milestone in centring women’s roles in climate governance. However, it needs expansion beyond gender to intersectional identities and disabilities. Implementation capacity remains a challenge.
Bangladesh Climate Change Trust Fund (BCCTF) (2010)	Finance climate adaptation and resilience projects across agriculture, water, infrastructure, and planning.	<ul style="list-style-type: none"> • Community-based planning and disability inclusion not well addressed. • Act is not structured around disability inclusion. 	BCCTF has mobilised significant domestic resources, showing strong national ownership. Yet funding criteria remain largely technical, with few mandatory inclusion benchmarks. Risks of reinforcing inequity in project benefits.

Bangladesh Climate Fiscal Framework (CFF) (2020)	Increase national ownership of climate finance, improve accountability, and include NGOs/CSOs/private sector in financing.	<ul style="list-style-type: none"> • Broadened scope in 2020 but lacks strong gender-specific mechanisms. • Disability and intersectional inclusion absent. • Citizen, especially disability engagement mechanisms weak. 	CFF strengthens institutional finance but risks reproducing existing exclusionary patterns. Without gender/disability-responsive budgeting, climate finance may fail to address inequitable vulnerabilities.
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International Frameworks and Commitments

Bangladesh has endorsed several international frameworks that call for disability inclusion in climate and disaster planning. The Sendai Framework for Disaster Risk Reduction (2015–2030) identifies persons with disabilities as active contributors to risk governance and calls for accessible systems (UNDRR, 2015). The UN Convention on the Rights of Persons with Disabilities (CRPD), ratified by Bangladesh, mandates state obligations under Article 11 for protection and safety in risk situations (GoB, 2013). These frameworks create the basis for disability inclusive adaptation.

Implementation at national level remains partial. The Third Nationally Determined Contribution (NDC 2021) identifies climate hazards but does not include disability indicators (Government of Bangladesh, 2021). The National Adaptation Plan (NAP 2023) refers to inclusion but lacks measurable targets. The NPDM 2021–2025 mentions persons with disabilities but has not developed monitoring indicators.

Climate finance proposals such as those submitted to the Green Climate Fund rarely follow CRPD-based requirements or accessibility standards (Islam and Nath, 2023). Analysts identify limited localization of international commitments (Ahmed et al., 2021; Islam and Nath, 2023). Infrastructure investments take priority over accessibility or participatory systems. Bangladesh meets formal compliance under Sendai and CRPD, yet operational clarity within climate adaptation documents remains limited. Strengthening alignment with Sendai indicators through universal design, participatory monitoring by DPOs, and disability targeted financing remains essential for implementation.

Recognitional Justice and Intersectionality in Terms of CCA

Recent studies identify recognitional justice as essential for acknowledging lived realities and systemic exclusion of persons with disabilities in climate affected contexts (Stein and Stein, 2022). In Bangladesh, recognition remains limited, as national climate adaptation documents often group disability with general vulnerable populations without addressing specific and intersecting needs (Stein et al., 2024; Engelman et al., 2022).

Women with disabilities face constrained mobility due to social norms and caregiving roles. During disasters they experience greater exposure to gender based violence and limited shelter access (Gartrell et al., 2020). Key frameworks such as the NPDM and NAP do not address gender disability intersections. Children with disabilities in rural schools often remain excluded from preparedness activities, and teachers lack training (Nuri et al., 2022). Persons with disabilities in coastal areas face barriers to mobile health services during cyclones, intensified by poverty and transport challenges (Barua and Molla, 2019).

Intersectionality extends to ethnicity and displacement. Indigenous persons with disabilities in the Chittagong Hill Tracts and Rohingya persons with disabilities in Cox’s Bazar experience dual exclusion from adaptation initiatives (Sudheer and Banerjee, 2021). Participatory planning with active engagement of persons with disabilities, particularly women and youth, can support inclusive outcomes. Strengthening data systems with disability, gender, age, and socioeconomic markers is needed (Stein et al., 2024). Collaborative work with DPOs enhances equitable adaptation (CDD and BRAC–UNDP, 2022).

Addressing Sustainable Development Goals (SDGs) Regarding CCA

Disability inclusion is essential for achieving Sustainable Development Goal 13 on Climate Action. SDG 13b highlights the need to strengthen capacity for planning and management among marginalised communities, including persons with disabilities (Kosanich et al., 2022; Zaman et al., 2022). National frameworks such as the NAP 2023–2050 and NPDM 2021–2025 mention disability only in broad terms. The SDG principle of leave no one behind aligns with inclusive adaptation, yet Bangladesh's Voluntary National Review did not integrate persons with disabilities into adaptation targets (Sightsavers Disability Alliance, 2017). Advocacy led by the Disability Alliance highlights this gap.

Synergies across the SDGs become clear when disability is incorporated into adaptation planning. SDG 3 is affected when persons with disabilities lose access to essential healthcare or assistive technologies during disasters. SDG 1 and SDG 4 connect through post disaster poverty risks and educational exclusion. Schools without accessible climate resilient infrastructure heighten barriers. SDG 5 is affected as women and girls with disabilities face higher risk of violence and exclusion in emergencies. Gender sensitive shelter design and accessible protection mechanisms are required (Stein et al., 2024; Maaninou, 2020).

SDG 16 benefits from inclusive governance when DPOs participate in adaptation planning and NAP implementation (CDD and UNDP, 2022). When disability inclusion is integrated across adaptation systems, progress becomes possible on multiple SDGs (Maaninou, 2020).

These interconnections underscore the necessity for integrated SDG-driven adaptation indicators—for instance:

- % of adaptation programs with disability-inclusive health services (SDGs 3 & 13).
- % of schools retrofitted for climate resilience and accessibility (SDGs 4 & 13).
- % of women with disabilities accessing SGBV services during/after disasters (SDGs 5 & 13).
- Presence of DPOs in climate governance committees (SDG 16).

Environmental and Personal Factors

Environmental and personal factors together shape vulnerability and adaptive capacity of persons with disabilities. Environmental barriers include physical and systemic constraints that limit access to essential services during disasters. Many shelters lack ramps, accessible toilets, and structural features needed for safety (Rofiah et al., 2024; CDD, 2021). Addressing these gaps requires enforceable policy, resource allocation, and monitoring (Farid et al., 2023; Stein et al., 2024).

Geographical location adds further obstacles. Persons with disabilities in remote areas face limited healthcare, weak transport networks, and slower emergency response (Faruk et al., 2024).

Personal factors relate to socioeconomic status, health conditions, and household circumstances. Low income households with persons with disabilities often lack resources for evacuation and recovery. Those with chronic health needs face risks when routine care is interrupted (Engelman et al., 2022). Integrated action across social protection, education, and healthcare systems can reduce these inequalities.

Targeted social safety nets, including cash or food support during crises, can improve resilience (Farid et al., 2024; Farid et al., 2025). Community based approaches with participation of persons with disabilities improve relevance and uptake. Families and community networks also provide essential psychosocial support (Farid et al., 2024). Mainstreaming disability inclusion within adaptation frameworks strengthens fairness and strengthens resilience outcomes for all (Stein et al., 2024).

State of Implications of Disability Inclusive Climate Change Adaptation in Bangladesh

State of Government Programs for DiCCA

The Government of Bangladesh has increasingly embedded DiCCA within its national frameworks, recognizing the heightened vulnerability of persons with disabilities to intensifying climate-induced hazards. This is evident through the Cyclone Preparedness Programme (CPP), which now includes inclusive protocols for community volunteers in response to climate-driven increases in storm frequency (Ministry

of Disaster Management and Relief, 2020; UNDRR, 2020; Farid & Nasreen, 2023; Afroz et al., 2018). Similarly, the Comprehensive Disaster Management Programme (CDMP) actively works to mainstream disability considerations across national adaptation plans by collaborating with DPOs (Quader et al., 2023; Seddiky, 2020). At the local level, proactive measures include the modification of flood shelters in Sirajganj with access facilities, serving as a core component of long-term climate-resilient infrastructure, while urban initiatives in Dhaka focus on climate resilience through specialized training for first responders to assist persons with disabilities (Mondal, 2019; Farid et al., 2025).

However, a significant gap between policy and implementation persists, primarily due to resource shortages, a critical lack of disability-disaggregated data on climate vulnerability, and inconsistent awareness among frontline personnel (Stough & Kelman, 2019; UNDRR, 2020).

Implementation of DiCCA by NGOs/INGOs

NGOs and INGOs have advanced disability inclusive climate change adaptation at community level. A prominent case is the initiative led by Christian Blind Mission in partnership with CDD and Gana Unnayan Kendra in Gaibandha District. The program addressed exclusion and vulnerability of persons with disabilities through five strands: strengthening groups of persons with disabilities, advocacy for representation in disaster management committees, improving accessibility of community shelters, promoting inclusive school preparedness, and supporting diversified livelihoods. Evaluations showed increased participation of persons with disabilities in disaster committees, improved shelter accessibility, and stronger preparedness knowledge in schools (Gvetadze and Pertiwi, 2022).

Another initiative, Strengthening Resilience in South and Southeast Asia, implemented by CDD with support from Arbeiter Samariter Bund, expanded DiCCA in Rayenda Union of Sarankola Upazila, Bagerhat District. Nine vulnerable population groups, including persons with disabilities and women, were prioritised for capacity building, livelihood diversification, and targeted climate adaptation campaigns (CDD, 2021). Partnerships with local governments supported inclusive awareness and climate adaptive livelihood opportunities (Khan et al., 2024).

In Southkhali Union, the CDD–CBM DiCCA initiative engaged persons with disabilities as co designers of adaptation interventions, including inclusive shelter design and assistive equipment logistics. Simulation exercises recorded high participation, and evacuation duration improved by 30 percent. A gap remained in long term maintenance support for assistive devices (CDD and BRAC, 2022).

These cases indicate that effective DiCCA in Bangladesh depends on both state level institutional inclusion and NGO led operational work. National frameworks give direction, but sustained community partnerships and resource investment ensure that persons with disabilities participate actively in adaptation and resilience building.

Future Directions and Recommendations

To strengthen the inclusion of persons with disabilities in CCA, future actions should focus on data, participation, intersectionality, and collaboration. Building comprehensive and disaggregated data is essential for identifying the distinct vulnerabilities and needs of persons with disabilities (Barua & Hasan, 2019). Detailed datasets enable targeted and evidence-based interventions (Farid et al., 2024; UNICEF, 2022).

Meaningful participation must be institutionalized in policymaking and implementation processes (UNDRR & WHO, 2019). Involving persons with disabilities in decision-making helps identify practical barriers and co-develop context-relevant solutions (Choudhury et al., 2021).

Policy frameworks also need to reflect intersectionality by addressing overlapping dimensions of discrimination, such as gender, age, and ethnicity (Kosanic et al., 2022). Tailored interventions should focus on women, children, and indigenous groups who encounter added barriers (Sinha & Sen, 2020; UN Women, 2023).

Enhanced coordination among government agencies, NGOs, and community-based organizations can align resources and strategies toward inclusive CCA (IFRC, 2022; World Bank, 2021). Collaboration strengthens networks, expands access to resources, and supports shared learning. When diverse stakeholders work together, communities become more capable of withstanding and adapting to climate risks (Nuri et al., 2022; Farid et al., 2024).

CONCLUSIONS

The review demonstrates that disability inclusion in Bangladesh's climate change adaptation and disaster risk reduction policies remains limited, with most frameworks being largely rhetorical and inconsistently implemented at operational levels. Persons with disabilities face amplified climate-related risks due to intersectional vulnerabilities, including gender, socioeconomic status, and geographic location, which further complicate access to adaptation and disaster management measures. Institutional mechanisms and infrastructure continue to be inadequately accessible, limiting the meaningful engagement of disabled populations in preparedness, response, and recovery initiatives. Priority policy actions include mandating disability-inclusive clauses and dedicated budget lines in national adaptation and disaster plans, conducting nationwide disability-disaggregated vulnerability assessments to guide resource allocation and planning, and integrating persons with disabilities into local disaster management committees and community resilience councils. Further actions involve implementing accessible shelter audits and retrofitting critical infrastructure with assistive features, strengthening collaboration with Disabled People's Organizations and civil society for monitoring and advocacy, and mobilizing donor and NGO support for inclusive adaptation pilots and capacity-building programs. The research agenda should focus on primary household and community surveys with disability-disaggregated climate vulnerability data, longitudinal studies to track the effectiveness of inclusive adaptation interventions, and evaluations of the accessibility and performance of retrofitted shelters, health services, and early-warning systems. Advancing disability-inclusive climate adaptation is both a human rights imperative and a matter of societal resilience, requiring coordinated policy action, infrastructure reform, and evidence-based research to reduce inequities and safeguard vulnerable populations within Bangladesh's highly climate-exposed context.

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