Guidance Note

Disability Inclusion inDisaster Risk Management Operations:
An Exploration of Good Practices and Resources

GFDRR
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Acknowledgements

I.   Introduction

One billion people around the world experience some form of disability, and 80 percent of persons with disabilities live in low-middle-income countries.[1] Disability is an evolving concept and "*results from the interaction between persons with impairments and attitudinal and environmental barriers that hinder their full and effective participation in society on an equal basis with others.*"[2] The obstacles may be further complicated by the intersection of disability with other identities such as gender, race, and ethnicity, and a combination of these factors can lead to systemic disadvantages and disparities.[3] Since 2020, the COVID-19 pandemic has further exacerbated the inequalities experienced by persons with disabilities including widening the digital learning divide, increasing domestic violence, and increasing discrimination.[4]

The link between disability and poverty is now well-accepted: "*disability is a risk factor for poverty, and poverty is a risk factor for disability.*"[5] However, disasters not only worsen the conditions of those living in poverty but can also push millions into poverty through a single event.[6] This is especially pertinent with the increase in disaster events and the worsening climatic effects due to climate change.[7][8] The intersection of poverty and disability, along with other sources of marginalization, can also play a significant role in undermining a person's resilience to disasters.[9]

People's vulnerability to the impacts of natural hazards and climate change are determined by social, economic, political, and environmental factors. A survey conducted by the United Nations Office for Disaster Risk Reduction (UNDRR) found that only 20 percent of persons with disabilities felt that they could evacuate their living spaces without difficulty in the event of an emergency,[10] and 72 percent of respondents said that they did not have a personal preparedness plan in the event of a disaster. Yet 51 percent of respondents expressed a desire to be involved in community-based disaster risk management (DRM) activities. These figures indicate a gap in the participation of, and protection measures for, persons with disabilities, despite their willingness to engage in preparedness activities.

Recognizing the importance of supporting persons with disabilities, the UN community has developed a robust global DRM and humanitarian architecture to promote the engagement and needs of persons with disabilities in the event of disasters, including the Sendai Framework for Disaster Risk Reduction 2015-2030[11] and the Convention on the Rights of Persons with Disabilities (CRPD).[12] International organizations have also expressed their commitment to protecting the rights of people with disabilities, for example, the [World Bank Group Commitments on Disability-Inclusive Development](), which includes Commitment 5: *People with Disabilities in Humanitarian Contexts – Our projects financing public facilities in post-disaster reconstruction efforts will be disability-inclusive by 2020.* Further, several national legislations have paved the way for project- and policy-level implementation of these commitments.

A 2017 report published by the Global Facility for Disaster Reduction and Recovery (GFDRR), [Disability Inclusion in Disaster Risk Management](), recommends that the World Bank should undertake specific efforts to include persons with disabilities in DRM activities while better aligning these efforts with the Sendai Framework's call for an inclusive approach to DRM. The report highlights five broad areas for disability-inclusive actions:

1.   Include persons with disabilities as valued stakeholders in DRM activities;

2. Help remove barriers to the full participation of persons with disabilities;

3. Leverage policies and legal frameworks to address the needs of persons with disabilities;

4. Collect data that is disaggregated by disability type; and

5. Ensure that new construction, rehabilitation, and reconstruction are accessible to persons with disabilities.

The long-term socio-economic impact of exclusion far outweighs the cost of inclusion if it is undertaken at the onset of development programming. Facilitating an environment with accessible infrastructure and appropriate support modalities would enable more than 1 billion people with disabilities to fully participate in society and contribute productively to the economy.[13] In Latin America and the Caribbean, by contrast, approximately 195 million people who live in households with persons with disabilities are affected by the lack of robust disability-inclusive policies and thus are unable to "fully participate in social, cultural, economic, and political spaces."[14] Similar trends are observed in other regions.

Building on the findings and recommendations of the 2017 GFDRR report, this note aims to update good practices of inclusive DRM in the five key areas outlined by the report, in the context of rapidly evolving multiple crises, especially punctuated by the COVID-19 pandemic. By highlighting World Bank-financed projects and stakeholder expertise, this note provides development practitioners with an array of examples to leverage more effective support for disability-inclusive DRM activities. The findings presented in this note are the result of a desk review,[15] consultations with World Bank staff, and in-depth interviews conducted with a range of stakeholders. The examples and resources featured in the note are relevant to both operational and analytical work.

Each of the five key areas will be taken in turn.

1. Include persons with disabilities as valued stakeholders in disaster risk management activities

An overarching principle of the Convention on the Rights of Persons with Disabilities that is related to the participation of persons with disabilities in DRM efforts is inclusive DRM. Providing a forum for persons with disabilities to participate in the process of making decisions affecting their lives is an effective way to benefit from their insights. As users of services, people with disabilities can influence decision-making processes to better protect themselves against disaster events. The participation of persons with disabilities and of Organizations of Persons with Disabilities (OPDs) in the design stage of DRM projects, and if possible earlier as part of the upstream disaster risk reduction dialogue among stakeholders, is particularly important. Frequently, such participants can highlight much more nuanced problems and needs, and identify opportunities and solutions for disability inclusion, that are often overlooked by professional "experts" yet very simple and inexpensive to address, as well as immensely impactful on their lives.

Accounting for the full range of the various types of disabilities is necessary to ensure equitable and valued participation of persons with disabilities and OPDs. Most disability-inclusive interventions in DRM tend to focus on physical impairments and tend to be mobility-specific. For example, if reconstruction and build-back-better projects include the provision of ramps, wider doorways, and handrails in bathrooms, such projects will often be deemed inclusive despite the fact that they really address only mobility barriers.[16] Yet according to some studies,

cognitive and intellectual disabilities, such as autism and attention deficit disorder, are in fact the most common disabilities worldwide.[17] If DRM projects do not take this segment of the population into account, they can put more people at a higher risk of exposure to the negative impacts of disasters without realizing the gravity of neglecting to address the needs of many others. Therefore, consultations with people with cognitive and intellectual disabilities are also a prerequisite of effective DRM planning.[18] For example, consultations with people with autism might result in the addition of a quiet, calming, distraction-free room in evacuation shelters and can help raise concerns about the use of flashing lights in hazard-alerting systems to accommodate people with light hypersensitivity.

Furthermore, continuous engagement during project implementation is crucial for strengthening disability-inclusive approaches. For example, the Emergency Awareness and Readiness Services for the Deaf and Heard of Hearing (EARS) consortium that provides emergency preparedness training, early-warning equipment, and coordination of emergency services for the benefit of persons with hearing impairments consulted with persons with disabilities on making accessible modifications to weather radios. Those consultations ultimately led to the addition of cellphone-type vibration capability and a different strobe light to the radios. Specifically, the persons with disabilities who were consulted insisted on changing the radio's red strobe light to a white one as it created a better user-friendly experience. Accessible modifications to weather radios are a good example of how working closely and continuously with persons with disabilities can create an inclusive feedback mechanism that improves and enhances the quality and effectiveness of the adaptation and accessibility measures.

In another example, Guyana's Civil Defense Commission consulted with the National Committee on Disability (NCD) to integrate accessibility into evacuation shelters at the design stage. NCD members, including one person with mobility impairments, reviewed the shelters and discovered that they were not fully accessible. As a result, the shelters had to be retrofitted to meet the accessibility standards. At that stage, the alterations were more costly and time-consuming than if they had been done at the design stage.

1.1 Examples of good practice

- **Integrating accessibility into project/program design:** Having a broader commitment to inclusion can facilitate the integration of accessibility at the project level. For example, the World Bank's Environment and Social Framework (ESF)[19] reiterates the importance of disability inclusion within Bank operations for mitigating project risks, improving development outcomes, and promoting effective implementation of mandates through inclusive, accessible, and consultative approaches to community engagement. Additionally, accessibility at the design stage can be further facilitated by the development and use of tools to measure the level of integration. The World Bank's Environmental and Social Assessment (ESA) helps identify opportunities for integrating accessibility measures in World Bank-financed projects at the design stage. The takeaway that has emerged is that it should be initiated as early as possible to ensure disability inclusion in the project design.[20] Furthermore, in 2022, the World Bank issued a Technical Note on Accessibility, which offers project teams an expanded list of useful resources and recommendations.[21]

- **Early and consistent stakeholder engagement:** Although persons with disabilities can and do play a significant role in the management and decision-making process related to DRM activities, for optimal engagement of OPDs, it can often be helpful to strengthen their capacity as actors of change, interlocutors, decision makers, and development partners through special education programs and targeted training initiatives. The World Bank's

Technical Note on Disability-Inclusive Citizen Engagement provides guidance on how to support clients to meaningfully engage persons with disabilities and their representative organizations.[22] To offer a country-specific example, in Bangladesh the Gaibandha Model, developed by the Centre for Disability in Development (CDD), the Christian Blind Mission (CBM) and Gana Unnayan Kendra, a local NGO, identifies key principles of early and consistent engagement of persons with disabilities in disability-inclusive DRM programs. The model uses five interventions to create resilient and inclusive communities: (i) empowering people with disabilities and their groups by including them in decision-making and preparedness plans; (ii) advocating with the local government for inclusive DRM; (iii) building accessible DRM infrastructure at the community level; (iv) strengthening household-level, disaster-risk awareness and preparedness; and (v) promoting sustainable, resilient livelihoods. Under the Gaibandha Model, some of the community-based interventions are aimed at creating self-help groups for mutual motivation and the training of persons with disabilities. The adoption of such local capacity-building interventions facilitates institutional and attitudinal change, leading to better inclusion and accessibility outcomes.

- **Early and systematic consultations:** It is essential to systematically consult and actively involve persons with disabilities through their representative organizations prior to (that is, upstream) and during the project cycle, because their early involvement can provide a broader picture of areas and sectors which may be of interest to the disability community. It can also be very helpful to systematically consult with and involve persons with disabilities and their representative organizations across *all areas of development work*, not just on issues specifically or narrowly related to disability inclusion. For example, the World Bank-financed Third Water Supply and Sanitation for Low-Income Communities / Community Based Water Supply Project (PAMSIMAS III) Project (P085375) engaged the international NGO Christian Blind Mission (CBM) to conduct training workshops for national government officers and provincial water and sanitation facilitators who, in turn, trained village-level facilitators, employing a cascading approach to capacity development. When the training materials for these workshops were developed, they took into consideration the special needs of persons with visual impairments because of the involvement of CBM, which in turn was possible because CBM had development experience that was broader than just working on visual impairment disability issues.

Key Takeaways and Recommendations

1. Include persons with disabilities and OPDs in upstream DRM dialogue as well as at every stage of the project cycle and consult with them regularly and systematically. Early consultations can result in a much more nuanced identification of problems and solutions that are often simple, inexpensive, overlooked, and yet immensely impactful.

2. Ensure that consultations are accessible and inclusive for the equitable and valued participation of persons with disabilities and OPDs through the use of appropriate locations, content, formats, lighting, sound isolation, and venues.

3. Situate persons with disabilities and OPDs at the center of the DRM decision-making process by investing in building and strengthening their capacity for community participation and policy making.

4. Put in place mechanisms that allow persons with disabilities to provide feedback on the quality and effectiveness of adaptations and accessibility measures.

5. Integrate inclusive approaches into DRM processes at the project planning stage to reduce the number of people who are at a higher risk of exposure to the negative impacts of disasters.

2. Help remove barriers to the full participation of persons with disabilities

At every stage in the DRM cycle, physical, environmental, institutional, attitudinal, and socioeconomic barriers can prevent the full and effective participation of persons with disabilities in disaster preparedness and recovery efforts. Tackling those barriers can help mitigate disproportionately negative outcomes for persons with disabilities, while demonstrating that the benefits of disability-inclusive DRM projects can be shared by all members of society.

Understanding the range of barriers faced by persons with disabilities is a first step in the process of planning comprehensive, inclusive interventions. International accessibility standards help address various barriers to persons with disabilities. For example, ISO 21542:2021, Building Construction - Accessibility and Usability of the Built Environment, should be used to integrate existing mandatory standards into national building codes. Compliance with ISO/IEC 40500:2012, Information Technology — W3C Web Content Accessibility Guidelines (WCAG) 2.0 ensures that persons with disabilities can gain access to essential, lifesaving preparedness and alert information. The concept of Universal Design illustrates how disability-inclusive DRM development often improves the lives of many other groups in the population.

2.1 Examples of good practice

- **Physical barriers:** Often, physical barriers considered in disability inclusion are wheelchair-specific, but there are other factors to consider, such as the diversity of impairments, the geographic locations (rural/urban), and the cultural norms that create barriers for persons with disabilities when they are trying to access the built environment. Importantly, people without disabilities also can experience mobility challenges. For example, besides people with mobility impairments, evacuation shelters built according to Universal Design standards make it possible for pregnant women and the elderly to access such buildings more easily and conveniently.

- **Inclusive early-warning systems:** It is essential to use easily accessible early-warning instruments to alert people with disabilities in the event of disasters. Good disaster risk communication practices require that for early-warning and preparedness messages to be effective, the information must be *received*, *understood*, and quickly able to be *acted upon* by persons with disabilities.

- The United States National Weather Service's Lightning Safety Awareness campaign involved people with hearing impairments to work in collaboration with a graphic designer who specialized in accessible communications to develop a symbol that would quickly convey best practices in the event of lightning. Not only did it improve the understanding of people with hearing impairments, but it even helped the hearing population to quickly understand the message. It therefore provided benefits to a much larger population than originally intended.[23]

- Furthermore, effective communication practices can ensure that people with disabilities receive lifesaving information in a timely manner. To do so, dissemination channels must be varied and wide-ranging and include electronic channels (for example, websites, mobile/smartphones, TV), physical channels (for example, posters, flyers), auditory channels (for example, loudspeakers, radios), visual channels (for example, flags, symbols), and relevant messengers within the disability community (for example, sign language interpreters). There are tradeoffs related to all these methods, which is precisely why it is helpful to

include a wide and varied range of alternatives that all work for different sub-populations. For instance, flashing lights are used in early-warning systems to alert persons with hearing impairments, yet the same flashing lights could be challenging for persons with autism or epilepsy, or can be ineffective for persons with visual impairments.

○ To receive information, some persons with disabilities rely on assistive devices such as hearing aids; cognitive aids such as computer assistive devices; or computer software or hardware such as screen readers and voice recognition programs.[24] Yet according to the World Health Organization, globally, only 1 in 10 people who needed assistive devices in 2018 had access to them.[25] This means that effective communications need to be designed without relying exclusively or too heavily on assistive devices, which still tend to be unaffordable to many people.

○ **Web Content Accessibility Standards**: These standards represent website design guidelines aimed at improving the functionality and usability of online information. For example, the standards ensure that individuals are able to make a font size bigger, turn text into speech, find the definitions of complicated words by turning on a glossary feature, or navigate a webpage in a user-friendly way, among other features.[26] The Web Content Accessibility Guidelines 2.1 (WCAG) provide a common standard for web content accessibility based on four principles: perceivable, operable, understandable, and robust. They were developed by the World Wide Web Consortium (W3C), an international standards body. Within DRM, compliance with WCAG 2.1 can help organizations create preparedness information in such a way that it is accessible to a wide range of audiences, including individuals who own mobile phones and smartphones, people who have a slow internet connection with limited bandwidth, those who are not internet-literate, or the elderly.[27]

○ **Common Alerting Protocol (CAP)**: For early-warning systems, the Common Alerting Protocol represents the key standard designed for all-hazards and all-media public warnings. Implementing CAP has benefits that go well beyond helping people with disabilities: CAP can make multilingual alerts easier, provide clarity on the location of the warning using geospatial shapes (polygons and circles), and disseminate the alert on multiple platforms, with custom messaging capabilities.

Overall, frameworks supporting universal design and accessibility standards applied to the physical environment, transportation, and ICT services constitute key mechanisms for protecting the rights of people with disabilities. In this regard, it is necessary to raise awareness and launch new education programs on accessibility standards among various groups of stakeholders, such as government agencies, NGOs, and private entities, including the design and engineering departments of firms, research centers, and universities. It is equally important to raise awareness about these issues among members of local communities, families, neighbors, social workers, and caretakers of people with disabilities.

Key Takeaways and Recommendations

1. Identify geographic, socioeconomic, institutional, and cultural factors that affect the needs of persons with disabilities in order to design inclusive interventions.

2. Use appropriate language and design to simplify messaging in disaster risk communications for timely access and receipt of easy-to-understand information.

3. Ensure that there are multiple channels, methods, and ways of communicating early-warning alerts and preparedness messages.

4. Support the creation of webpages that meet the Web Content Accessibility Standards so that they are beneficial to people with or without disabilities.

5. Integrate the Common Alerting Protocol when developing early-warning systems.

3. Leverage policies and legal frameworks to address the needs of persons with disabilities

Existing legal frameworks and policies can be leveraged to increase awareness and generate buy-in with governments, partners, and clients. The Convention on the Rights of Persons with Disabilities[28] protects disability rights and is aligned with the United Nations Sustainable Development Goals (SDGs) and the SDGs' 2030 Agenda.[29] The global DRM and humanitarian community have further advanced the inclusion of persons with disabilities through several international agreements[30] that can be used to highlight the importance of disability inclusion in a DRM context.

3.1 Examples of good practice

○ **Disability-inclusive legislation:** Many countries have laws and policies that mandate disability inclusion and the implementation of the CRPD.[31] For example, Indonesia's 2016 disability law states that national and local governments must ensure "proper and accessible accommodations" for persons with disabilities to participate in disasters, post-disaster recovery, and reconstruction.[32] This disability-inclusive legislation is aimed at addressing the needs of persons with disabilities by identifying and dismantling barriers, and by ensuring equally shared benefits from sustainable development for all people.

○ **Identifying inclusive legislation gaps:** Systematic reviews of existing legislation help identify gaps and opportunities for disability-related reforms. A 2022 GFDRR report, *Disability Inclusion in Disaster Risk Management: Assessment in the Caribbean Region,* which includes country profiles with different regulations and frameworks, indicates that, overall, the implementation of national laws and accompanying local accessibility ordinances is very fragmented. For example, although most Latin American and Caribbean countries include the principle of universal access in their disability legislation, many schools remain inaccessible to students with disabilities. Many countries also demonstrate a gap between national and sectoral policy documents. For example, Dominica's 2001 Disaster Management Policy established a disaster management plan that includes vulnerable persons, yet it does not explicitly mention persons with disabilities.

○ **Corporate commitments for universal access:** At the organizational level, the World Bank's 10 Commitments to a Disability and Inclusion Accountability Framework[33] and the provisions of its Environmental and Social Framework[34] that are related to universal access in the design and construction of buildings and infrastructure require World Bank teams to consider disability inclusion as a critical aspect of their agreements with government counterparts. Both frameworks can be used to negotiate with governments and development partners regarding disability-inclusive interventions, even in those cases where national disability laws are absent or not enforced.

○ **Updating building codes:** The adoption of comprehensive national building codes is one of the most effective ways to safeguard communities and people with disabilities against natural disasters. It is therefore important to update national building codes according to new climate change adaptation, environmental, and disability requirements, as well as design and construction standards. Such initiatives could also benefit from awareness-raising programs promoting updated national building codes. A good example is the 2021 program on Improving National Building Codes and Standards in the Pacific, launched by the Pacific Region Infrastructure Facility (PRIF) in several Pacific Island countries.[35] In addition to an awareness-raising initiative, this program also focuses on building the capacity of the officials who enforce national building codes. This is particularly important in those cases where government agencies have limited budgets and human resources. In such cases, it is particularly important for government agencies to establish clearly demarcated responsibilities, benchmarks, and enforcement mechanisms for compliance with accessibility standards. Furthermore, the experience of some Latin American countries has demonstrated that fines collected for violations of accessibility requirements not only motivate compliance but can be allocated to special trust funds used to advance the disability agenda, for instance, by financing inclusive infrastructure projects.

○ **Design and use of Adaptive Social Protection (ASP) systems:** The adoption of comprehensive ASP legislation can provide social protection benefits, services, and delivery systems to help people with disabilities manage disaster risks. Countries such as Brazil, Chile and Mexico have developed flagship programs and robust ASP delivery systems that have often been replicated across the region.[36] Comprehensive ASP systems have a strong potential for improving the resilience of people with disabilities, ensuring better responses to disaster impacts and more effective preparedness measures for future emergencies. In Costa Rica, for example, the National Commission for Persons with Disabilities' program provides cash transfers to persons with disabilities to offset their extra expenses associated with access to basic services, assistive devices, and adjustments in their living arrangements. Recently, Costa Rica has significantly diminished the poverty gap, demonstrating that targeted efforts within such programs can potentially lead to poverty alleviation for persons with disabilities.

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1. Identify existing gaps in legislation and entry points for further efforts within disability-inclusive interventions.

2. Develop and promote legislation and interventions to facilitate the access of persons with disabilities to assistive technology products, including mobility devices.

3. Renew existing national building codes and other relevant regulations in accordance with international accessibility standards and guidelines, taking into consideration the importance of disability-sensitive design.

4. Develop capacity-building programs for officials responsible for the enforcement of national building codes and other relevant regulations.

5. Establish clearly demarcated responsibilities of relevant government agencies to promote accountability, clear benchmarks, and enforcement mechanisms to ensure compliance with accessibility standards.

6. Leverage effective funding schemes for adaptive social protection policies to benefit persons with disabilities, with a focus on their relevance, sufficiency, and sustainability.

7. Explore private sector and corporate commitments to build the business case for inclusion as a tool to motivate partners and provide accountability.

4. Collect data disaggregated by disability type

To demonstrate the importance of disability inclusion in DRM projects and target the right beneficiaries, project teams, governments and other development partners need sound evidence and data. However, one of the key challenges in disability-inclusive DRM is absent, inadequate, or limited disaggregated data.

Since persons with disabilities are up to four times more likely to die in a disaster, it is important to know their location and specific needs.[37] Disability-disaggregated data can be used in several different contexts. For example, it can support the development of appropriate early-warning systems and outreach efforts by OPDs. It can also help identify candidates for local DRM programs. Data can also be used to create geo-coded social assessments and social registries that allow local government officials to prioritize vulnerable groups in disaster-response efforts.[38]

4.1 Examples of good practice

○ **Building on existing methodologies:** The Washington Group Questions (WGQs),[39] widely used as a disability data collection methodology, were created by the Washington Group on Disability Statistics for use in national censuses and surveys. The WGQs were designed to avoid the use of the term "disability," which is often subject to social stigma and prejudice. In addition to national governments, the WGQs are also used by a range of development and humanitarian organizations.[40] Their widespread use stems from the practical guidance they provide on how to (i) use inclusive language; (ii) avoid leading questions on disabilities; (iii) focus on functional dependencies; (iv) ensure an accurate calibration for severity; and (v) accommodate different types of disabilities.

- **Community-based approaches to data collection:** Community-based approaches to collecting disability data have their own unique challenges. In many countries, because of social stigma, persons with disabilities or their household members are often reluctant to identify them in disability-related surveys. Enumerators can play an important role in addressing these and other challenges that arise in the process of collecting disability-disaggregated data. In addition, awareness-raising campaigns among various groups of the population can help to counter stigmas, prejudices, rigid cultural norms, and biases in data collection and reporting. There may also be concerns about privacy or distrust of government agencies and officials that could negatively impact residents' willingness to share disability information, even if it could lead them to access improved services they desperately need. For these reasons, it is important to understand how local community members can be approached, what specific questions they can be asked, and what type of information they feel comfortable to share.[41] A good example is an education program in Syria[42] aimed at comparing learning outcomes between children with and without disabilities, based on the Washington Group Child Functioning Screening questions. The screening that was conducted by specially trained schoolteachers and safeguarding officers helped identify students that require additional support.[43]

- **Data confidentiality and use:** Community members should know who will be getting access to their information before consenting to data collection. Will this information be shared with the government, with international organizations, and/or with OPDs? To answer this and other similar questions, it is important to identify a list of actors who will or will not have access to this information and manage the related data in a transparent way. There is also a need for clearly defined collaboration and data-sharing agreements between various stakeholders.

- **Social registries:** In New Orleans, Louisiana, the city's registry is used during power outages as a way for emergency management authorities to identify who relies on electric-powered oxygen generators, so that emergency oxygen tanks can be delivered to those in need.[44] One expert pointed to the possibility of using this registry to help other community stakeholders, such as shelter workers or security forces, get to know about the needs of different community members. For example, community members with mobility challenges might need wider entrances or ramps installed in shelters, while those with cognitive or psychosocial disabilities, or those who have suffered trauma, might need more activities to help them stay calm.

- **Accessibility Audits:** Accessibility audits help to assess the barriers to the full participation of persons with disabilities in DRM.[45] Many international NGOs have developed monitoring toolkits that include checklists and guides on accessibility audits.[46] For example, the Cebu Disability-Inclusive Disaster Risk Reduction Network in the Philippines leads a team of persons with disabilities who train public servants on how to mainstream their inclusion in disaster preparedness. As part of that effort, the Cebu Network conducts accessibility audits in buildings around the province.[47] The institutionalization of accessibility audits as a key part of inclusive DRM activities and continued coordination with OPDs allowed Philippines authorities to monitor and address disability challenges more effectively.

- **Measuring accessibility gaps:** To be able to trace progress, a harmonized approach to measuring accessibility gaps needs to be developed to help both policymakers and practitioners identify all the bottlenecks and opportunities for improvements in DRM interventions. It is also important to identify relevant indicators, including at the baseline level, to help strategize and prioritize moving-forward steps. For example, the Incheon

strategy[48] has provided the Asian and Pacific region with the first set of regionally agreed disability-inclusive development goals. It comprises 10 goals, 27 targets, and 62 indicators, including ensuring disability-inclusive DRM. For instance, to trace countries' progress on making the physical environment more accessible, the Incheon Strategy suggests using the following indicators: (i) a selection of accessible government buildings in the capital; (ii) a selection of accessible international airports; (iii) the availability of a government access audit program requiring the participation of experts with disabilities; and (iv) the availability of mandatory technical standards for barrier-free access that govern the approval of all designs for buildings, based on internationally recognized standards, such as those of the International Organization for Standardization (ISO). In spite of this, both international and national statistics related to these indicators remain limited.

Key Takeaways and Recommendations

1. Ensure that all tools and methods for collecting, analyzing, and disseminating risk information are accessible to people with disabilities.

2. Disaggregate data by disability type and ensure the protection of personal information.

3. Facilitate the use of existing data collection tools and the development of new tools to address disability data needs, particularly risk information.

4. Integrate different community approaches for data collection, taking cultural and societal norms into consideration.

5. Support and promote primary data collection to determine whether persons with disabilities are being served effectively by existing social safety net programs.

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5. Ensure that new construction, infrastructure rehabilitation projects, and public building reconstruction are accessible to persons with disabilities

Persons with disabilities often face limited access to fundamental services such as housing, roads, public spaces, transit, sanitation and water, health, education, and emergency and disaster response as a result of barriers or hurdles in accessing the built environment, transport, and ICT. When infrastructure is inaccessible to persons with disabilities, they face social exclusion and are unable to participate in and contribute to society. Inadequate attention to their needs in DRM operations results in policies and programs that may marginalize or deny access to people with disabilities, heighten their risk of loss of life and property, and perpetuate long-term social and economic repercussions. This underscores the importance of a disability-informed and disability-responsive development agenda.

Ensuring that DRM investments are disability-inclusive requires proactive measures to incorporate disability into disaster risk assessments; facilitate the meaningful participation of persons with disabilities at all levels of disaster risk governance; build their resilience; and when there is a need to reconstruct infrastructure, for example, following a natural disaster, recover and rebuild in a way that truly translates into their full inclusion and participation.

5.1 Examples of good practice

○ **Disability-inclusive multifunctional design**: The World Bank-financed [Strengthening Disaster Risk Management Project](#) (P166302) in Romania is enhancing the resilience of essential emergency-response facilities partly by integrating Accessibility and Universal Design standards into the design plans. An important point raised during the project design stage was that because the long-term use of public buildings is unpredictable, making them universally accessible will likely increase the longevity of the building's use. In practice, removing barriers to full accessibility for persons with disabilities turns out to also be beneficial to other disadvantaged and marginalized groups.

○ **Inclusive rehabilitation and reconstruction:** In September 2018, Central Sulawesi in Indonesia experienced a series of catastrophic disaster events, including a magnitude 7.5 earthquake, followed by tsunami and ground liquefaction. The Government of Indonesia led recovery efforts to "build back better" under the World Bank-financed [Central Sulawesi Rehabilitation and Reconstruction Project](#) (P169403) using an inclusive and resilient approach. Within this project, the Government committed to implementing the principles of Universal Design for all World Bank-financed public facilities, including schools, health facilities, and government buildings. These principles were included in Ministerial Regulation No. 14/2017. In addition, the GFDRR developed a series of audit checklists to identify accessible solutions during the design and construction phases to support inclusive reconstruction.

○ **Evacuation and shelter accessibility:** World Bank-financed projects [Multipurpose Disaster Shelter Project](#) (P146464) in Bangladesh and the [Andhra Pradesh Disaster Recovery Project](#) (P154847) in India incorporated Universal Design Standards to provide easier-to-access entry for children, pregnant women, and the elderly. Another World Bank-financed project, the [Jhelum and Tawi Flood Recovery Project](#) (P154990), in India made schools, which are often used as evacuation shelters, more universally accessible by constructing clear pathways to traverse and by positioning shelves and other furniture at an appropriate height for children.

Key Takeaways and Recommendations

1. Integrate and monitor the use of Universal Design Standards to create multipurpose infrastructure and public buildings suited for long-term use by a wide range of users.

2. Leverage reconstruction efforts as an opportunity to apply the Universal Design Standards and ensure the use of various tools to identify accessibility solutions at the design stage.

3. Ensure that retrofitted and new construction of public buildings and evacuation shelters involve consultations and audits by persons with disabilities.

4. Through community-based support and engagement, enhance build-back-better efforts related to the built environment and to the transport system.

5. Promote the resilience of strategic infrastructure, public buildings and related sectors through the enforcement of national building codes and investments that ensure continuity of critical services during crises.

II. Key Intersecting Themes

An analysis of good practices and examples of integration of disability considerations into DRM activities highlights three key intersecting themes related to the underlying assumptions and resource needs for this integration: (i) cost considerations, (ii) training, and (iii) sustainability and long-term impacts.

i. Cost considerations in disability-inclusive project budgeting

The key concerns of development practitioners and governments that are designing and implementing DRM projects include how much additional or alternative activities and approaches for inclusion will cost. Costs usually increase when disability-inclusive changes are added to a project after the fact, particularly at the later stages, resulting in more resources, time, and efforts needed. Designing a relevant data collection strategy, conducting inclusive consultations, and engaging with persons with disabilities and OPDs at the project design stage also incur additional costs. However, the importance of disability-inclusive budgeting relates to the fact that such additional expenditures contribute to inclusive development,

providing benefits to both people with and without disabilities. Early inclusion of such costs in the project design allows teams to budget their financial resources at later stages. For example, a study of accessible housing in Australia found that the additional cost for including accessibility measures for a single-house dwelling at the design stage was 0.2 percent of the total cost, whereas retrofitting for accessibility after implementation was 6 percent. Therefore, integrating disability-inclusive approaches at the design stage can help project teams save limited resources.

ii. Training as an essential project component

In addition to providing a deeper understanding of the recommendations for disability-inclusive DRM, the findings of this note reveal that training is essential to measure the effectiveness of DRM interventions. The training process allows teams to ensure that all stakeholders receive and understand relevant information. In this process, however, it is important to ensure that all training materials are designed to be accessible to persons with disabilities. In various projects, training initiatives ranging from the use of qualified sign-language interpreters for early-warning systems, to organizational workshops on evacuation and emergency planning, represented opportunities for strengthening disability-inclusive DRM activities.

iii. Using an integrated approach for sustainability and long-term impacts

The World Bank's *Green, Resilient, and Inclusive Development (GRID)* Strategy Document[49] promotes economic growth that goes hand in hand with both environmental goals and inclusion. The GRID strategy allows project teams to address various issues related to disasters, climate change, vulnerability, and the inclusion of people with disabilities, emphasizing a more comprehensive approach that seeks to address the relationships between sustainability, long-term impact, resilience, and inclusiveness in a simultaneous and systematic way. Such an integrated approach is particularly useful because it builds on synergies and acknowledges the rich interlinkages between human, environmental, socioeconomic, institutional, and other factors. For example, the GRID agenda considers social safety nets, combined with a disability-inclusive built environment, transport, and ICT services, to be critical elements of support for people with disabilities in disaster situations because they help strengthen resilience by making public finance and infrastructure systems more equitable. Due to the compounding risks the world is currently facing, an integrated approach of synchronized measures would serve as a basis for sustainability and long-term positive impacts on disability communities.

III. Concluding remarks

This note illustrates the importance of adopting a comprehensive, multi-stakeholder approach to disability inclusion in DRM programs, and presents a series of good practices, resources, and examples based on World Bank-financed projects and other government and development partner initiatives. The key takeaway from the review is the need to ensure the meaningful involvement and participation of persons with disabilities and OPDs at all project stages, especially the early stages.

Numerous project examples from around the world show that the early engagement of persons with disabilities, and their representative organizations, in DRM activities helps to identify relevant solutions in a timely and effective way. It also helps save human and financial resources and ensures more impactful project outcomes, enabling people with disabilities to rapidly respond to disasters and emergency situations.

A summary of key activities to mainstream inclusive approaches to DRM is outlined in annex 1. The implementation of such activities is critical to help empower persons with disabilities by engaging them in disaster preparation, response, and recovery efforts. In the role of decision-makers and key partners, persons with disabilities can significantly contribute, and add value, to DRM projects in ways that are inclusive and beneficial to all.

Annex 1: Indicative Examples of Activities to Mainstream Inclusive Approaches in DRM Projects

Risk Assessment	Risk Reduction	Preparedness Measures	Financial Protection	Post-Disaster Response and Recovery
○ **Identify risk profiles** and hazard maps with **disaggregated data and analysis** ○ **Document differentiated vulnerabilities** (physical, social, economic, cultural, political, and environmental)	○ **Identify and act on barriers** that hinder inclusive participation in DRM and climate change-related activities ○ **Include socially inclusive commitments** in institutional and policy frameworks	○ **Design inclusive and universally accessible early-warning systems** by addressing all types of constraints on mobility and access to information ○ **Engage vulnerable groups** in disaster preparedness drills	○ **Identify barriers** (such as legal, policy, and cultural constraints) that are faced by vulnerable groups in accessing and using **financial protection schemes** ○ **Include intersectionality approaches** in financial protection plans and programs	○ **Include social inclusion considerations** in post-disaster needs assessments (PDNAs) and in reconstruction plans ○ **Rehabilitate and rebuild** infrastructure and facilities in a way that is inclusive and universally accessible

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