Disability and Climate Resilience

A Literature Review

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Leonard Cheshire Disability

UKaid
from the British people

By

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ACRONYMS

ADCAP	Age and Disability Capacity Building Programme
ASB	Arbeiter-Samariter-Bund
BRACED	Building Resilience and Adaptation to Climate Extremes and Disasters
CBM	Christian Blind Mission
CCA	Climate change adaptation
CEDAW	Convention on the Elimination of all forms of Discrimination Against Women
CERA	Community Empowerment and Resilience Association
CRC	Convention on the Rights of the Child
C-SAFE	Consortium for Southern Africa Food Emergency
DALYs	Disability-adjusted Life Years
DFAT	Australian Government Department of Foreign Affairs and Trade
DFID	Department for International Development
DiDRR	Disability Inclusive Disaster Risk Reduction Network
DIPECHO	Disaster Preparedness Echo
DPO	Disabled People's Organisation
DRR	Disaster Risk Reduction
HVCA	Hazard Vulnerability and Capacity Assessment
IFRC	International Federation of Red Cross and Red Crescent
INGO	International Non-Governmental Organisation
IPCC	Intergovernmental Panel on Climate Change
MCCR	Myanmar Consortium for Community Resilience
NFOWD	National Forum of Organisations Working for the Disabled
NGO	International Non-Governmental Organisation
SDGs	Sustainable Development Goals
STEP	Special Talent Exchange Programme
UN	United Nations
UNCRPD	Convention on the Rights of Persons with Disabilities
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	United Nations High Commissioner for Refugees
UNISDR	United Nations International Strategy for Disaster Reduction
USAID	United States Agency for International Development
VCA	Vulnerability and Capacity Assessment
WASH	Water, Sanitation and Hygiene

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EXECUTIVE SUMMARY

This literature review covers a comprehensive body of literature targeting data from 2007 onwards in low and middle-income countries. It presents evidence from a literature review that retrieved and screened 1,011 articles and 546 grey literature sources. A total of 107 relevant sources were selected from the published and grey literature in accordance with the study design, of which 53 were included in the final review.

The paper explains the literature review methodology, discusses concepts and definitions of resilience and introduces key global frameworks relating to climate change, disaster risk reduction and development. Resilience is a complex concept and has to be analysed in light of its practical applications, especially in relation to socio-ecological systems and disasters. The differences in conceptualisations reflect the wide diversity of academic disciplines and operational organisations working in this area. As a result, resilience is seen in a range of different ways, and can be understood as an outcome, a process, an ability (or capacity) or as a learning process enabling continuous adjustment. A range of complexities of conceptualisation are discussed in depth in this review.

The main frameworks analysed include the Paris Agreement, the Sendai Framework for Disaster Risk Reduction, the UN Convention on the Rights of Persons with Disabilities, the Incheon Strategy and the 2030 Agenda for Sustainable Development. Disability is an important component of these frameworks, and inclusive practices are deemed essential to achieve their objectives and targets.

The review also helps to understand the links between climate change, disaster risk management and development practices.

The literature on disability and climate resilience presents evidence of available inclusive practices in climate change adaptation programmes. Though limited in scope and warranting further field studies, some examples are providing insight into good practices.

An emerging theme is the links between climate change adaptation (CCA), disaster risk reduction (DRR) and disability. Disability has been a pivotal point in a number of projects in relation to CCA and DRR. There is limited evidence of how the resilience of persons with disabilities has been enhanced by those interventions. This is required in order to produce more evidence-based recommendations and guidelines.

The data available demonstrates heightened vulnerability for at-risk people. The evidence pointing directly to climate change and its consequences for persons with disabilities demonstrates impacts that are more severe than those for the general population, while their resilience capacity is lower. The consequences relate to the following domains: health, food security, water, drought, migration, urbanisation and access to resources.

Evidence from disability-inclusive DRR and humanitarian practice is included to draw applicable lessons for building climate resilience. DRR programmes have increasingly included persons with disabilities. Good practice examples include targeted cash transfers, inclusive hospital preparedness plans and targeted trainings for children with disabilities.

Evidence from other groups considered to be at risk – including women, children, older persons and indigenous people – is included to draw further learning for enhancing resilience to climate risks. Specific groups have been shown to have higher risks, such as women, being more exposed to climate change risks while having less resilience than men to these risks. It is expected that the intersection of being part of such a group and being a person with disability may lead to additional exposure to risk and the need to further targeting. The intersectionality of climate resilience and specific populations is a growing field in climate research, and there is increasing evidence demonstrating the differential impact of climate change on oppressed groups, key points of which are discussed in the review.

Approaches for building resilience of persons with disabilities to climate change should involve the following strategies:

- A **twin-track** approach of ensuring people with disabilities can access all DRR and relief services.
- Processes for ensuring the **participation** of people with disabilities in all stages of preparedness and response through effective analysis and mapping.
- The active **engagement and representation** of people with disabilities in decision making bodies and the leadership roles of people with disabilities in informing practice.
- **Awareness raising** of preparedness measures amongst people with disabilities.
- **Accessibility** that is embedded across the physical environment, in communications, and in reconstruction.
- **Non-discrimination** and **addressing stigma** is integral.
- **Coordination and collaboration** is required between the diverse range of actors in disaster and humanitarian response, the government, and people with disabilities and their representative organisations.
- **Capacity building** of different stakeholders on disability rights.
- **Effective advocacy** by building on existing networks and through coalitions.
- **Data disaggregated by disability and other characteristics**
- **Technology** such as GIS has the potential to play a greater role in helping to prepare and protect people with disabilities during disasters.
- Critically, inclusive practice should build the resilience of people with disabilities through effective **empowerment**.

To conclude, the review emphasises the importance of understanding that an individual's resilience to risks is shaped by existing inequalities, individual and social characteristics, and how these factors intersect. However, in much of the available literature on climate change and DRR, there remains a prevailing trend that 'vulnerable' people (people with disabilities, women, children, older persons and indigenous people) are grouped together. People with disabilities themselves are not a homogenous group: individuals with disabilities have hugely varying degrees of resilience to climatic shocks.

The review found a shortage of concrete examples of building the resilience of people with disabilities to climate risks. However, the review found that there are signs that some organisations are starting to target people with disabilities, and that there are some examples of specific interventions that offer useful lessons for inclusive resilience building. The review also demonstrated that what constitutes good disability-inclusive practice is also true for other groups who are considered at risk, and also identified the importance of participation and engagement to help build resilience.

The review highlights the importance of people with disabilities' agency to enhance their resilience: their perspectives, knowledge and experience are essential for understanding risk, and building resilience. This means playing an active role in all stages of the programmes and policies that are designed to build the resilience of all.

The review concludes with suggestions as to a series of further research activities that would build on the evidence available and address some of the gaps identified in the literature review.

INTRODUCTION

Outline

This review presents evidence from a comprehensive search of literature on the relationship between disability and climate resilience. It first sets out the context within which the review was undertaken, then introduces the key global frameworks around climate change, before moving on to outline the methods, definition of resilience used in the review, as well as definitions of humanitarian crisis, disaster risk reduction and development more broadly. The paper then discusses disability and climate resilience and presents evidence of inclusive practice in climate change adaptation (CCA) programmes. Evidence from inclusive disaster risk reduction and humanitarian practice is included to draw applicable lessons for building climate resilience. Finally, evidence from other groups considered to be at risk – including women, children, older persons and indigenous people – is included to draw further learning for enhancing resilience to climate risks.

Background

The world has seen a significant increase in both the severity and frequency of disasters, and the link between climate change and extreme events is increasingly being recognised (IPCC, 2012). These are compounded by ongoing social, economic and political challenges, resulting in humanitarian crises, such as the highest number of refugees in history. Research has shown that disasters have a disproportionate impact on some groups in situations of risk, including persons with disabilities (Kett and Twigg, 2007). Both the development and humanitarian communities are setting out to identify efficient strategies and solutions to address these challenges. Solutions have been explored at all levels of the disaster cycle, from the protection (mitigation and preparedness) to the recovery phase (response and recovery), but there is still a need for an inclusive integrated approach to CCA, humanitarian response and international development work.

It is important to note that climate has an impact on all aspects of human life, and therefore overlaps with work on disaster risk reduction (DRR), humanitarian interventions and development more broadly. It also has differential impacts on different groups at different times, for example older adults, persons with disabilities; and women, men, and girls and boys. These impacts range from international through to community and household level. People with disabilities are often amongst the poorest in any society (Groce et al., 2011), but to date, relatively little is known about the impact of climate change on this group (Kett and Scherrer, 2008), or indeed their resilience to climate shocks and stresses, particularly in low and middle income countries.

Persons with disabilities constitute a large proportion of every population, being 15% of the world population (WHO 2011). They also constitute a segment of the population that too often faces discrimination and exclusion, leading to challenges in gaining access to the same opportunities as the rest of the population (Kett and Twigg 2007).

The UN Convention on the Rights of Persons with Disabilities (UNCRPD) came into force in 2008, and has now been signed by 172 countries. While there is no specific article on climate or its impacts in the UNCRPD, many of the Articles have relevance, and in addition to all the general articles and principles underpinning the UNCRPD, Article 11 focuses specifically on situations of risk and humanitarian emergencies:

> *"States Parties shall take, in accordance with their obligations under international law, including international humanitarian law and international human rights law, all necessary measures to ensure the protection and safety of persons with disabilities in situations of risk, including situations of armed conflict, humanitarian emergencies and the occurrence of natural disasters."*

Whilst states who sign up to the UNCRPD may acknowledge the need to ensure the safety and security of persons with disabilities in such situations, in reality it is often the international community who intervene and provide humanitarian support. Therefore the UN has begun to ensure its humanitarian interventions are more disability inclusive, and a number of agencies have begun to develop standards and guidelines, including Guidance on Working with Persons with Disabilities in Forced Displacement (UNHCR, 2011), Disability-inclusive shelter and settlements in emergencies (IFRC 2015), Disability and emergency risk management for health (WHO 2013) as well as a raft of guidelines and toolkits on disability inclusion from international NGOs such as CBM, Women's Refugee Commission and Handicap International (Protection: Issues for People with Disabilities and Injuries (2006); Mainstreaming Disability into Disaster Risk Reduction (2009); Disability checklist for emergency response (2010)).

Mainstream generic standards, as the Sphere Standards, internationally agreed standards and indicators for the humanitarian community which include a strong commitment to disability inclusion as one of a number of cross cutting issues (including children, older adults, gender, climate etc). However, there were no specific targets or indicators for inclusion in the 2010 edition; rather it outlines a set of principles for inclusion. The Sphere Standards are currently undergoing further revision, and will likely include more specific targets to ensure the inclusion of persons with disabilities.[1]

Whilst both generic standards on quality and accountability have helped to improve the overall coverage of humanitarian response, it was argued there was still a need for more relevant and systematic approaches to ensure the inclusion of some groups – in particular older people and people with disabilities. Whilst these groups can obviously overlap, they are affected by many of the same or very similar barriers to access and participation. It was argued by the Age and Disability Consortium[2] that there were a set of simple measures that could be taken by humanitarian organisations to address these barriers by adapting existing programmes. The Age and Disability Capacity Building Programme (ADCAP) has drafted a set of Minimum Standards for Age and Disability Inclusion in Humanitarian Action. The consortium see ADCAP as not only a technical tool, but also a way to raise awareness about

[1] Personal communication with Sphere Project team

[2] A group of seven agencies working to promote age and disability inclusive humanitarian assistance (CBM, DisasterReady.org, Handicap International, HelpAge International, IFRC, Oxford Brookes University and RedR).

these issues more generally, in particular the need for organisational change to ensure inclusion of persons with disabilities, older adults, and diversity more broadly. This includes within the member agencies themselves.

However, whilst this represents a shift from viewing disability as one of a number of separate cross-cutting issues, or compounding factors, to viewing them as stemming from a similar set of issues; it still does not quite offer a means to understand why, how or when all these factors intersect to create exclusion, nor what interventions are needed to address them. This is compounded by the fact that as yet, there are few tools or frameworks to identify areas of intersectionality, or indeed measure – and address – the impact.

Perhaps one of the biggest challenges to this is to understand the range of experiences of adults and children with disabilities. The nature and severity of the impairment, the age of onset, class, race, sex, marital status and many other factors besides all mitigate a person's experience of disability – and in turn, their capacity for resilience. There is then a 'trade-off' between offering homogenised – and simplified – recommendations, which will likely work for some persons with disabilities (and maybe even all at different times); or offering more complex, tailored recommendations and interventions which will be more efficacious but may benefit a smaller number of people. This may in part be linked to the issue that in many lower income countries, such nuances are less apparent (poverty being a great leveller), and diagnoses – let along treatment or support – are much harder to come by. Nevertheless, certain groups seem to experience stigma, discrimination and exclusion in most parts of the world, in particular those with learning disabilities or mental health conditions. However, to date, there is very little literature that explores these issues in detail, nor how their resilience can be bolstered in these circumstances. Nevertheless, it is important to remember that, from a rights-based perspective, each and every individual has the same rights. This can be challenging for states in terms of delivering equitable and inclusive services.

Whilst Article 11 of the UNCRPD focuses specifically on the safety and protection of persons with disabilities during conflict, humanitarian emergence and disasters, other articles also offer avenues of potential support. For example, Article 28 focuses on adequate standard of living and social protection, which would provide some support to those at risk of the impact of climate change. Article 28 has particular relevance in countries affected by climate change, many of which who are instigating (social) protection measures to build the resilience of their citizens before, during or after disasters. For example, Bangladesh is setting aside contingency funds for climate-related disasters and is considering the development of a dedicated loss and damage mechanism. However, it is important that these protection measures and mechanisms must be able to reach those in need, for example 'poor households with a high dependency on natural resources for their livelihoods' (Kreienkamp and Vanhala, 2017: 3).

Therefore, while there has been an increased focus on disability inclusion following the UNCRPD, and a subsequent shift towards the inclusion of persons with disabilities into global development frameworks, such as the Sustainable Development Goals (SDGs), with the particular focus on 'leaving no one behind', there is still a great deal to do to ensure

inclusion takes place, taking into account the heterogeneity of disability. Though disability is explicitly referenced 11 times in the Goals (and many more times in the Targets and Indicators), as well as further references to 'persons in vulnerable situations', it is clear that persons with disabilities cannot be left out of any of the goals, and work is still ongoing to ensure they are included in all the targets and indicators. There is also a specific reference to disability in Goal 17 'underlining the importance of data collection and monitoring of the SDGs, with emphasis on disability disaggregated data'.

This review will therefore explore the available literature around disability and climate resilience specifically, as well as DRR, humanitarian interventions and development more generally. However, the main focus of this review is to identify the evidence - and the evidence gaps – in the specific field of climate resilience in order to provide specific recommendations and guidance for future research and programme intervention, so this forms the bulk of the review.

Key Frameworks

The Paris Agreement, global frameworks and disability

The Paris Agreement builds on UNFCCC; which was agreed December 2015 and entered into force November 2016. To date, the UNFCCC has been ratified by 144 countries, and aims to bring all countries together to address the threats of climate change, and enhance support for developing countries to do so. The Paris Agreement itself acknowledges that in their efforts to mitigate the risks of climate change, all countries should respect their obligations on human rights, including: 'the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity' (UNFCCC, 2015: 2).

As with the overall Agreement, the specific Articles also speak directly to the importance of ensuring that adaptation is rights-based and inclusive. Article 2 recognises the Agreement must be implemented 'to reflect equity and the principle of common but differentiated responsibilities and respective capabilities', and emphases the importance of fostering climate resilience within the context of sustainable development and poverty eradication (UNFCCC, 2015: 3). Article 7 states the importance of adaptive capacity and strengthening resilience, and that adaptation should follow contextual, participatory and gender-responsive approaches that account for 'those that are particularly vulnerable to the adverse effects of climate change' (UNFCCC, 2015: 9).

Although the Agreement has only one reference to disability specifically, to realise the Agreement in practice, increasing the resilience of all people to the impacts of climate change is required. The rights of people with disabilities must therefore be embedded in resilience building efforts. Inclusion should be incorporated into how adaptation reflects equity and respective capabilities (Article 2); enhances adaptive capacity (Article 7); averts loss and damage through effective early warning systems, emergency preparedness and builds the resilience of communities (Article 8); and into climate change education, training, public awareness, participation and access to information (Article 12). Inclusive approaches

should also be reflected in activity at the country level (Article 11) and accounted for in country reporting mechanisms (Article 3).

Other global development frameworks developed in 2015 reflect disability in more detail. Stough and King (2015) conclude that the Sendai Framework for Disaster Risk Reduction 2015-2030, adopted by UN member states at the Third UN World Conference on Disaster Risk Reduction in March 2015 (UNISDR, 2015), has placed people with disabilities and their organisations as proactive stakeholders in the development of effective DRR policies. This constitutes a significant advance in comparison to the Hyogo Framework for Action 2005-2015 that preceded it. Thanks to the active lobbying of civil society through the Disability Caucus, a joint effort from civil society to lobby for disability inclusion in the final text, and champion countries, such as Japan, disability took an unprecedented place in mainstream international treaties. Disability activists were also granted, for the first time, the status of 'other stakeholders', allowing access to the various negotiation processes. Another significant change in the Sendai Framework, in comparison to the Hyogo Framework, is the move away from a strictly geophysical vision of hazards and risks to that of risks in relation to human vulnerabilities and resilience, and to role of government in bolstering such resilience (SFDRR, 2015: preamble).

Disability is mentioned on five different occasions in the final text (Stough and King, 2015) and the broader interpretation of DRR includes various at-risk groups, including persons with disabilities. For example, in the preamble (line 7) it is stated that:

> *'There has to be a broader and a more people-centred preventive approach to disaster risk. Disaster risk reduction practices need to be multi-hazard and multisectoral, inclusive and accessible in order to be efficient and effective. While recognizing their leading, regulatory and coordination role, Governments should engage with relevant stakeholders, including women, children and youth, persons with disabilities, poor people, migrants, indigenous peoples, volunteers, the community of practitioners and older persons in the design and implementation of policies, plans and standard…'*

The Sendai Framework recognises the importance of universal design, of disability-inclusive disaster preparedness, and the availability of accessible technology and communications. Critically, the Framework emphasises the role people with disabilities and their respective organisations can and should play in both its implementation and monitoring. In addition, the Sendai Framework plans to lay out concrete indicators and steps to be taken in order to ensure disability inclusion through the disaster cycle. It is to follow the general objectives mentioned in the original document, though guidelines on monitoring and reporting are yet to be issued. Being too early in the cycle, there also is no reporting done at country level at this time. More information might arise after UNISDR Global Platform in Cancun (2017) and specific requirements to support NGO and country reporting identified. This provides an obligation for participating countries to implement inclusive practices and to report on their achievements. Initial country reports will provide useful information on the state of implementation and consideration of disability issues, when published. However, challenges

such as baselines for disability-disaggregated data collection are likely to remain. For example, disability data collection, though prominent in the Sendai Framework for Action, has not been outlined in the UNISDR 2016 annual report, raising doubts as to individual countries' capacity to collect such data.

In 2012, the High-level Intergovernmental meeting from Asia and Pacific countries adopted the Ministerial Declaration on the Asian and Pacific Decade of Persons with Disabilities, 2013–2022, and the Incheon Strategy to "Make the Right Real" for Persons with Disabilities in Asia and the Pacific (UNESCAP, 2012). The Incheon Strategy was the first document to outline specific disability-inclusive indicators within Goal 7 (ensure disability-inclusive disaster risk reduction and management). It provided the first outline of measurable targets and goals in DRR. Though not explicitly linked with climate change, it would assist in better preparing persons with disabilities for the potential impacts of disasters (including extreme climatic events) and for their inclusion in the response phase. The Incheon Strategy, by covering disability inclusive disaster risk reduction and setting reporting guidelines to the state parties, has the potential to foster such practices. The results are yet to be reported as the mid-term review is to be undertaken later this year (2017); and to date, no country report showing any measures of disability inclusion has been published.

In addition to its broad focus on sustainability and equity, the 2030 Agenda for Sustainable Development (United Nations, 2015) also places emphasis on inclusion and the importance of ensuring people with disabilities and other marginalised groups are proactive stakeholders in the development process. Resilience is particularly important in the context of Goal 11 (creating accessible cities and water resources, affordable, accessible and sustainable transport systems, providing universal access to safe, inclusive, accessible and green public spaces), which speaks to the importance of ensuring accessibility and inclusion to ensure safe and resilient cities for all, including persons with disabilities.

The 2030 Agenda also refers to the importance of addressing climate change, and effective DRR: Goal 13 is specifically on Climate Action. However the Agenda recognises the UNFCCC as the appropriate lead on climate issues so does not include detailed targets. However, it is interesting to take note of clause 13.b:

"Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities."

This clause recognises the importance of involving specific communities that could potentially be left behind – which may include adults and children with disabilities.

The Habitat 3 Conference, which took place in Quito (Ecuador) in October 2016, also took note of the issue of disability within the context of "safe and resilient cities" (UNDSPD, 2016). That such global development frameworks are starting to reflect the importance of inclusion – and the connections between development, DRR and CCA – does mark progress. With each framework running until 2030, the focus now for the international community is now on implementation. However, significant challenges for ensuring inclusion remain, particularly in terms of the specific goals and indicators being developed; whether or not

countries and agencies will follow up on their commitments; and the need for systematically inclusive practice; all of which are currently limited by the lack of available data on disability (Stough and King, 2015). The participation and leadership of people with disabilities in all aspects of these frameworks will not only be in line with the requirements of the UNCRPD, but will ultimately be critical to their success.

Resilience

Concepts and definitions

The term 'resilience' is widely used in academic and operational discourse. In physics and engineering it refers to the ability of a material or building to resist stress and disruption and to return to its former shape after deformation. In psychology, it considers individual personality traits that enable personal development despite exposure to risk and adversity, and the contexts, processes and circumstances in which both individual and family adjustments take place. In organisation and management studies, which draw upon psychological and ecological thinking, resilience is seen as a form of adaptive capacity for dealing with risks and uncertainty; and the related study of socio-technical systems looks at the interdependencies among technical systems that provide key functions (e.g. power, communications, transport, water) and their fragility under stress. Resilience thinking has been applied only relatively recently to disasters, crises and security (Alexander 2013; Bahadur et al. 2012; de Bruijne et al. 2010).

Thinking about the stability of socio-ecological systems and interactions between human societies and environments (Folke 2006) has been particularly influential on the application of resilience ideas to disasters, shocks and stresses. This perspective is summed up in one of the most widely cited formulations of the complex relationship between ecological and human systems; that of the Resilience Alliance, cited on their webpage as:

> 'Ecosystem resilience is the capacity of an ecosystem to tolerate disturbance without collapsing into a qualitatively different state that is controlled by a different set of processes. A resilient ecosystem can withstand shocks and rebuild itself when necessary. Resilience in social systems has the added capacity of humans to anticipate and plan for the future. Humans are part of the natural world. We depend on ecological systems for our survival and we continuously impact the ecosystems in which we live from the local to global scale. Resilience is a property of these linked social-ecological systems (SES). "Resilience" as applied to ecosystems, or to integrated systems of people and the natural environment, has three defining characteristics:
>
> - The amount of change the system can undergo and still retain the same controls on function and structure
> - The degree to which the system is capable of self-organization
> - The ability to build and increase the capacity for learning and adaptation'

There is currently a lively debate in DRR and CCA circles about appropriate conceptual frameworks for disaster resilience and how to apply resilience approaches operationally in disaster planning, response and recovery (Sturgess and Sparry 2016). These differences reflect the wide diversity of academic disciplines and operational organisations working in

this area. As a result, resilience is seen in many different ways, ranging from traditional ideas of resistance to shocks and the ability to maintain or bounce back to the status quo, to more progressive thinking about adaptive management (particularly with regard to shocks likely to be induced by climate change) and creation of new capacities to deal with unforeseen change. Resilience can be understood as an outcome, a process, an ability (or capacity) or as a learning process enabling continuous adjustment (Cutter et al. 2008; Béné et al. 2012; O'Brien and O'Keefe). It is sometimes confused with an ideal state of security, but it is more helpful to see a disaster-resilient community as "the safest possible community that we have the knowledge to design and build in a natural hazard context" (Geis 2000: 152).

Some researchers even argue that resilience is too vague a concept to be useful in disaster risk reduction (Klein et al. 2003; Manyena 2006). In ordinary dialogue, different understandings and meanings are often assumed or hidden, which leads easily to confusion. Levine et al. argue that:

> "…despite widespread agreement in policy circles that resilience should be a central concern, many are struggling to know exactly what resilience is. This growing 'resilience debate' thus rests on a paradox that needs explaining" (2012: 1)

Agencies working on development, DRR or CCA may bypass the complex academic debate in favour of deliberately simpler definitions and frameworks that are easier to apply operationally, especially at local level. Typically these explain resilience as the capacity to:

- 'anticipate, minimise and absorb potential stresses or destructive forces through adaptation or resistance
- manage or maintain certain basic functions and structures during disastrous events
- recover or 'bounce back' after an event' (Twigg 2009: 8)

However, over-simplification can bring its own problems. It can make fundamental terms so broad that they lose clear meaning, turn 'resilience' into an umbrella term for a variety of different ideas or system attributes, or result in existing activity being simply re-labelled as resilience-building.

Transformation

Resilience is traditionally seen in terms of recovery and restoration, as in UNISDR's (2009) definition:

> "The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions."

But disasters can also be catalysts for change. Resilience is increasingly being viewed as a capacity to move forward, adapt to a changed reality and capitalize on the new possibilities offered, rather than merely to bounce back – in other words, as an opportunity for transformation (Manyena et al. 2011; Pelling and Manuel-Navarrete 2011). Hence DFID's working definition of disaster resilience is:

> " … the ability of countries, communities and households to manage change, by maintaining or transforming living standards in the face of shocks or stresses - such as earthquakes, drought or violent conflict - without compromising their long-term prospects." (DFID, 2011: 6)

Similarly, Béné et al. (2012: 20-23) propose a '3D' framework that incorporates three core components of resilience:

1. *Absorptive* coping capacity, which creates persistence and leads to stability.
2. *Adaptive* capacity, which creates incremental adjustment and leads to flexibility.
3. *Transformative* capacity, which creates transformational responses and leads to change.

The DFID-funded Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED) Consortium has picked up these ideas in its '3As' formulation of resilience as adaptive, anticipatory and absorptive capacities (it differs in seeing transformation as an approach rather than a capacity) (Bahadur et al. 2015). Like many other recent frameworks and formulations, these consider resilience as a set of capacities or abilities, not as a process or an outcome. This perspective may be helpful in linking resilience to other approaches in development, notably the 'capitals' of the sustainable livelihoods approach, which, in various forms, has been widely used for many years by a great number of agencies; and the capabilities approach, which has been used to analyse a disabled person's personal characteristics, resources and environment (Mitra 2006).

The transformative idea tends to be described in broad and abstract terms. There is still little empirical study of what climate- and disaster-related transformative resilience looks like in social and institutional systems, or about how to achieve it. This is a significant gap in our understanding, particularly regarding persons with disabilities. Further research into this subject could be informed by work such as that of developmental psychologists on persons with disabilities' ability to manage risks, based on recognition that an individual's resilience is not a fixed attribute but represents processes that reside in both individuals and their environments (Murray and Doren 2013). It could also be linked to a wider body of work on the social construction of disability which maintains that disability is culturally situated and socially mediated, and locates resilience of persons with disabilities within social structures, networks and resources (Runswick-Cole and Goodley 2013).

Equity and inclusion

The standard conceptualization of resilience in terms of systems, and the language associated with this, tend to exclude issues of social equity, inclusion and power relationships. This clearly has important implications for persons with disabilities, although their needs and capacities are not discussed in this literature. Bahadur et al. (2010) are unusual in having social and economic equity as one of the fundamental characteristics of a resilient system.

Some other writers recognize that resilience is not distributed equally: greater resilience for one group affects the resilience of others, in positive or negative ways. Resilience is also inherently conservative, focusing on the persistence of a system; but in some systems, change may be desirable. There can be losers as well as winners within the system (these

are people, social groups, institutions, etc., who are active agents seeking to satisfy their own needs and ambitions within the system) in order to secure the resilience of the system as a whole (Béné et al. 2012; Levine et al. 2012). Most resilience writing is power-neutral, even though power relations play a prominent part in human systems (Cannon and Müller-Mahn (2010). By glossing over the existence of social divisions and inequalities, it reinforces existing social relations, while the growing tendency for governments to advocate community and local resilience leaves local actors to cope with problems that are national and global in origin (MacKinnon and Driscoll Derickson 2012; Neocleous 2013; Joseph 2013).

Working definitions

In this review the research team have been guided by DFID's definition of resilience and the BRACED programme's 3As formulation given above. Resources that present information on the capacity of people with disabilities to manage change in this way, and on the broader relationship between disability and climatic risks, have been included in this review in line with these.

Methodology

Approach

This literature review is based on evidence gathered through a comprehensive search for evidence on the relationship between disability and climate resilience. The search had two phases: an initial comprehensive search of academic databases, journal catalogues and online libraries and websites of NGOs, including: Science Direct, Scopus, Web of Science, JSTOR, Prevention Web, Source and Eldis. The research team then identified supporting information by sending requests through their networks of contacts working in CCA, disaster risk reduction and humanitarian response.

Comprehensive search terms

For the comprehensive search, combinations of appropriate search terms were used, including the terms: 'disability', 'climate', 'climate change', 'resilience', 'adapt', 'adaptation', 'capacity', 'vulnerability', 'mitigation', 'conservation', 'disaster', 'risk' and 'natural hazard'. Each combination used in the search is outlined in Appendix A (Search Terms), the results of which are shown for a search of academic databases in Appendix B (Database Results), and for relevant websites in Appendix C (Website Results).

Inclusion/exclusion criteria

Evidence from the comprehensive search was included in this review if it presented evidence primarily on the relationship between disability and climate resilience, or disability and humanitarian emergencies or disaster risk reduction. Specific examples were included in the review if they presented evidence from low or middle income countries, from the last 10 years (2007 onwards). Additional examples – identified through the authors' networks and previous work – were included if they presented evidence matching the above criteria.

The search terms yielded a number of examples from high income countries, and papers that referred to Disability Adjusted Life Years (DALYs). This evidence was not included, as it

either did not present evidence from development contexts, or is focused on disease burdens and health risks, rather than people with disabilities and climate change.

Supporting evidence was also included where this was relevant to the research objectives. This included information and evidence on relevant global development frameworks, climate change, disability, disaster risk reduction, humanitarian response, intersectionality and resilience.

The full list of sources identified in the comprehensive search and as supporting evidence is listed in Appendix D (Disability and Climate Sources) and Appendix E (Supporting Evidence Sources).

Results

The comprehensive search of disability and climate resilience yielded a total of 53 directly relevant resources (see **Figure 1**). This included seven published papers: five that included evidence on the relationship between disability and climate change, and two with evidence of disability in the disaster context. The majority of the available resources (46) presented evidence from grey literature: 29 presenting evidence between disability and climate change, and 17 on disability in humanitarian or DRR contexts.

Supporting evidence included in this research provided a further 77 resources. This included 43 published papers: 13 of which present evidence on disability in humanitarian or DRR contexts, and 30 focused on supporting evidence; and 34 pieces of grey literature (14 on disability and humanitarian / DRR contexts and 20 providing supporting evidence)

The review is therefore based on a total of 50 published papers and 80 pieces of grey literature. 34 resources present evidence on the relationship between disability and climate change, 46 on disability and humanitarian or DRR contexts, and 50 provide further supporting information (See appendix E). Appendices B and C present the total number of relevant sources used in this review by subject and type.

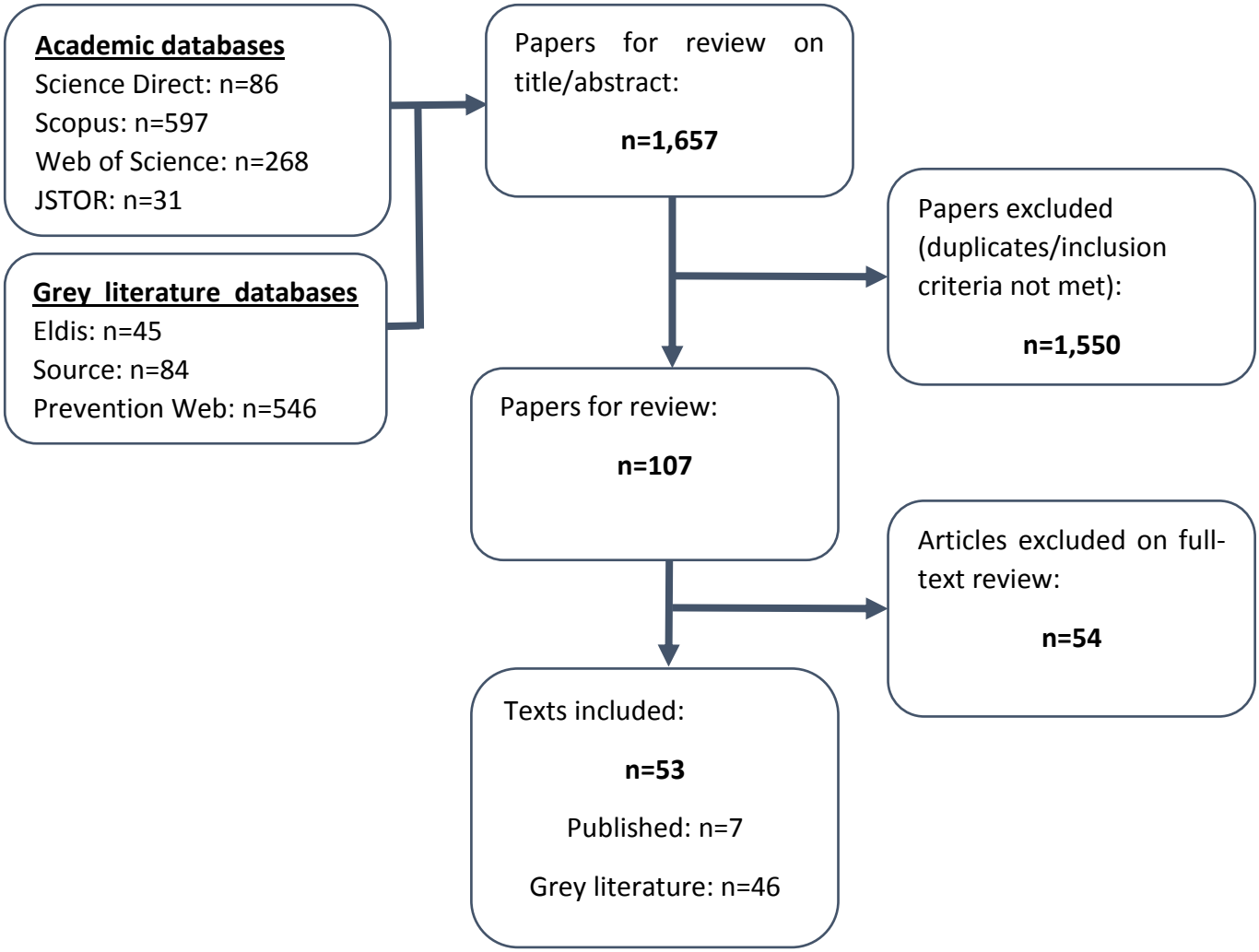

Figure 1 Review process

Limitations

Based on the above results, a limitation of this review is the lack of published peer-reviewed evidence on the relationship between disability, climate change and resilience building. The lack of academic research and evidence more broadly reflects an historical lack of evidence of inclusive practice in CCA programmes. The available evidence suggests that the climate sector is currently behind DRR and humanitarian practice when it comes to evidence of disability-inclusive approaches although – as with development more broadly – there is limited evidence of disability-inclusion across these sectors.

The majority of examples of resilience building and disability were found in the grey literature. Due to the lack of evidence, examples were included if they presented evidence

on the relationship between disability and climate change. Grey literature is inherently less rigorous and of a lower quality than academic evidence. It should also be noted that many of the examples of good practice in the grey literature – particularly in toolkits and guidance – are at this point more *aspirational* than *evidence* based. Although this demonstrates progress as practical tools are increasingly recognising the important of more inclusive approaches, few presented concrete evidence of building resilience. For this review, it has been necessary in some cases to infer that certain practice could *potentially* enhance the resilience of people with disabilities. This is indicative of the need for further research into the relationship between building resilience to climate risks, and disability.

Due to the scarcity of evidence, many of the papers and grey literature included in this review were not specifically focused on disability and climate resilience, but presented relevant examples or evidence on the relationship between disability and climate resilience, so were included. The review itself is structured to reflect this limitation, with focused sections presenting evidence from case studies that were focused on disability and climate resilience (*Examples of inclusive practice in CCA : Resilience building*) and disability in DRR and humanitarian contexts (*Lessons for climate resilience – examples of inclusive practice*).

It should also be noted the majority of examples included in this review are from Asia. There are several examples from Latin America in the available literature, but very few from African contexts. This indicates the need for greater geographical diversity in climate, DRR and humanitarian literature, particularly from African contexts. We hope that this research, which gathers empirical data in Kenya, as well as Bangladesh, will make a potentially particularly significant as a contribution to knowledge

A further limitation that is reflected in the review is that the majority of examples that report inclusive practice or aspirational methods imply that disability is homogenous. This review shows that people with disabilities are not a homogenous group and that individuals with disabilities have hugely varying degrees of resilience to climatic shocks. It also notes that an individual's resilience to risk is shaped by existing inequalities, individual and social characteristics, and how these factors intersect. It argues that describing people with disabilities – and other marginalised people – as 'vulnerable', without breaking down the characteristics that shape vulnerability, is not an effective approach for resilience building. However, the review itself is constrained by the limitation that the majority of the literature refers broadly to people with disabilities, without further consideration.

Themes

Despite the low quality of the evidence base, a number of themes emerge from the available literature presenting evidence on the relationship between disability and climate resilience. We can infer that there is a growing – and necessary – connection emerging between DRR and CCA, and that this integrated approach can have a positive impact on resilience building. This represents an opportunity to embed *inclusion* into a more integrated approach. It is leading to a growth in inclusive practice, though it should be noted that this is predominantly around including people with disabilities as part of a list of 'vulnerable' groups to engage in resilience building activity, and there is little evidence to

date of *how* the resilience of people with disabilities to climate risk has been enhanced by these interventions.

The literature on disability in DRR and humanitarian contexts shows a limited but growing amount of evidence of inclusive practice. There is also a greater level of consistency (in terms of the useful lessons and themes that emerge) than with climate and disability literature. This review has grouped examples into twelve areas of good practice that emerge from DRR and humanitarian practice:

1. an effective twin-track approach of ensuring all practice is inclusive, and providing targeted support where this is required;
2. ensuring participation of people with disabilities;
3. engagement and representation of people with disabilities on decision-making bodies;
4. raising awareness;
5. ensuring all forms of accessibility, and that post-disaster reconstruction 'builds back better';
6. non-discrimination and addressing stigma;
7. co-ordination and collaboration;
8. capacity building;
9. effective advocacy;
10. the collection and use of disability data;
11. opportunities for new technology;
12. empowerment and enhanced resilience of people with disabilities.

The review will now explore the key themes that emerged from the literature on disability and climate resilience specifically, before returning to discuss what – if any – overlapping areas there are between these two bodies of literature; and what – if any – lessons can be learned from the work on inclusive DRR and humanitarian contexts.

EVIDENCE FROM THE LITERATURE REVIEW

Disability and climate resilience

The inequitable nature of climate change

The environmental impacts of climate change are well documented. Consequences include increased temperatures, sea-level rise, excess rainfall and droughts, and increasing extreme weather events (IPCC, 2012; Levy and Patz, 2015). Extreme events associated with climate change are also increasing in their severity (Lewis and Ballard, 2012).

These changes inevitably impact the resilience of the communities that are exposed to their risks. Agricultural production, access to water, mobility and many other aspects of everyday life face disruption. Ultimately, the consequences of climate change threaten the rights of the people that are impacted in terms of access to safe water, food, security and exposure to health risks (Costello et al., 2009). As these risks disproportionately affect low-income countries, and poor people in high-income countries, Levy and Patz (2015) conclude that climate change is fundamentally an issue human rights and social justice. The links between inequality and exposure to climate change negative consequences is demonstrated, with a specific mention of disability as one of the categories at risk (UNDESA, 2016).

> *"In the Fifth Assessment Report, Working Group II notes that socially and geographically disadvantaged people, including those facing discrimination based on gender, age, race, class, caste, ethnicity and disability, are particularly affected by climate hazards (Olsson and others, 2014, p. 796)."*

Current predictions show that low-income countries – which, by producing the lowest amounts of greenhouse gases, have contributed the least to global warming – are more adversely affected by climate change. These countries are also predicted to have less capability to adapt to growing risks (Levy and Patz, 2015). It should be noted that the majority of the world's poorest people live in ten countries, and that six of those countries[3] have been predicted to be in the top 20 most impacted by climate change (CBM, 2012).

It is critical to consider who within those countries will face the greatest exposure to risk. It is increasingly clear that climate risk – as with disasters – exposes existing inequalities. The people who face the greatest levels of risk – and therefore require the highest resilience – are likely to be those that face the highest inequality and barriers accessing their rights in everyday life. This includes people with disabilities, women, children, older persons, minority and indigenous groups, people with chronic health conditions and other contextually marginalised people (Polack, 2008; Levy and Patz, 2015; Action Aid, 2016).

Integrated, rights-based approaches

This understanding of the inequitable impact of climate risk is reflected in calls for sustainable adaptation and mitigation measures that protect human rights, and respect

[3] China, India, the Philippines, Vietnam (middle-income countries) and Bangladesh and Ethiopia (low income-countries) UN Habitat 2010 cited in CBM, 2012: 2

global rights frameworks[4] (Polack, 2008; Levy and Patz, 2015). There is also a clear case for greater integration between CCA, DRR, humanitarian and development actors. Increasingly, there is evidence to suggest the most effective and sustainable approaches to dealing with the risks posed by climate change, disasters and widespread poverty are connected, and therefore efforts to deal with their threats – and build resilience to them – should also be integrated (Mitchell et al, 2010; Turnbull et al, 2013; Sightsavers, 2015; Action Aid, 2016).

This integration extends to other areas of development that are also associated with building resilience, for example in social protection measures. UNICEF (2014) suggest that a current issue is the limited knowledge that social protection, disaster risk, and climate change experts have of each other's areas of work. They also may also have different understandings of risk and vulnerability, which act as a further hindrance.

In addition to greater integration, the rights and participation of impacted people are key to building resilience. This ensures that assessments and adaptations are built on local knowledge, account for the context and local power relations, and facilitate ownership and agency of those most likely to be impacted (Turnbull et al, 2013; Mosberg, 2015). Critically, to succeed, a more integrated, participatory approach to building resilience must also be inclusive (CBM, 2012; Sightsavers, 2015).

Climate risk and disability

Rights-based, participatory approaches to resilience-building are particularly relevant to people with disabilities and other marginalised groups. Poverty, minority status, gender, age, disability and other demographic and health-related factors make some people less resilient to climate change than others (Levy and Patz, 2015). However, in 2008, both Polack and Governance and Social Development Resource Centre found that evidence of how climate change impacted marginalised groups was limited. Disability specifically provided the least evidence. The majority of evidence related to disability focused on how the number of people with disabilities may be increased by climate change (GSDRC, 2008; Polack, 2008).

That climate change exposes existing inequalities means people who already lack resilience face the highest exposure to risks. Ensuring their systematic participation in all stages of an integrated approach to building resilience is paramount. People with disabilities are the experts on their own lives, so are best placed to advise on what inclusive resilience building should be. Empowering, participatory approaches to building resilience to climate risks are therefore required. (Lewis and Ballard, 2012; Mosberg, 2015).

Table 1 collates evidence from available literature on the relationship between climate change and disability.

[4] Including for example: the UN Conventions on the Rights of Persons with Disabilities (UNCRPD); the Elimination of all forms of Discrimination Against Women (CEDAW); the Declaration on the Rights of Indigenous Peoples; and the Convention on the Rights of the Child (CRC)

Table 1: Climate change and its potential impact on people with disabilities	
Health	The health status, and prevalence, of people with disabilities is expected to be impacted by increases in malnutrition and the burden of diarrhoeal diseases, and the changing distribution of infectious diseases. Increased disease and injury is also likely, due to an increase in the frequency of extreme weather events. People with pre-existing health conditions are also likely to face disruption and barriers accessing essential health services. (World Bank, 2008; CDKN, 2012; IDDC, 2012)
Food security	People with disabilities and their families living in poverty often face food shortages. Climate change is predicted to exacerbate food shortages and malnutrition in many of the world's poorest countries. An expected decline in production will adversely affect people already living in poverty, triggering increased risks for women, children, older persons and people with disabilities. (World Bank, 2008; Lewis and Ballard, 2012)
Water	Climate change is expected to expose hundreds of millions of people to increased water stress. People living in poverty are at the greatest risk, and many people with disabilities already face barriers accessing safe water for drinking, sanitation and hygiene. People with disabilities may also have increased sensitivity to water-borne pathogens. Droughts and floods are also expected to become more severe, adversely impacting an already scarce water supply. (World Bank, 2008; Lewis and Ballard, 2012)
Drought	Droughts threaten food security and negatively impact the population in affected areas. Up to 1.3 million people have been affected by drought, up to 800,000 being impacted severely. Of those people around 20% are estimated to be highly vulnerable including people with disabilities, children under 14, female headed households, pregnant women, older persons and people living with illness. Tackling barriers to working in the agricultural sector has also been highlighted as a challenge for people with disabilities, but increasing drought will further limit employment opportunities. Large scale migration is often the response to drought, which has specific risks for people with disabilities. (FAO, 2009; GPDD and World Bank, 2009; UN, 2009; IPPC, 2012; Patel, 2015)
Migration	It is estimated that at least 200 million people (18 million people with disabilities) could be displaced by climatic events by 2050. Many people with disabilities will also be left behind when others have moved on, with the consequent loss of crucial social and support networks. People with disabilities who migrate may face challenges around mobility, requiring assistive devices, a lack of accessible transportation and accommodation. (IDDC, 2012; Lewis and Ballard, 2012; Ghenis, 2016)
Urbanisation	Many people moving to urban environments settle in slums, where infrastructure and services are weak, there are high rates of disease and challenges accessing safe water and sanitation. The barriers for people with disabilities in such environments are heightened. (Lewis and Ballard, 2012)
Access to resources	People with disabilities often face barriers accessing information and resources which could impact their knowledge of, and capacity to adapt to, climate change. Climate change also increases pressure on available resources and services, which could lessen their availability for the poorest people, including people with disabilities living in poverty. This will also place greater pressure on impacted people to maintain and rebuild their assets after climatic shocks. This context can also lead to increased conflict over natural resources, which places

	even greater pressure on people with disabilities and other groups who have less capacity to adapt. Persons with disabilities and their families may also be vulnerable – along with others in their communities – to exposure of their assets and livelihoods to climatic risks, and have limited capacity to manage these risks. (World Bank, 2008; IDDC, 2012; Lewis and Ballard, 2012)

Given the broad and challenging relationship between climate change and disability set out in **Table 1**, the absence of people with disability in climate discourse is of grave concern. Intergovernmental Panel on Climate Change (IPCC) reports are noted for having failed to mention people with disabilities, the reports themselves are also not shared in accessible formats and for providing their information in inaccessible formats (Wolbring, 2009; CBM, 2012). This invisibility reflects the lack of disaggregated data on the impacts and responses to climate change for particular groups, including by age, gender, ethnicity and disability (World Bank, 2008). Hopefully this situation is to change, considering the emphasis on disability-disaggregated data within the UNCRPD (UN, 2006) and the SDGs (UN, 2015).

It is imperative that this gap in climate discourse is addressed. Resilience building will only be effective if people with disabilities can participate in all stages of the programmes designed to enhance resilience (Turnbull et al, 2013; Wolbring, 2009). Polack (2008) notes that this need for inclusion is reflected in most reports about 'vulnerable' groups which reference respective human rights treaties to call for adaptation that promotes and protects the rights of all people.

Unpacking climate vulnerable groups

Climate discourse has traditionally recognised that certain factors – such as disability, gender, age, race, caste and religion – are cross-cutting themes that are important for understanding vulnerability and risk (IPCC, 2012). In climate – as in wider development practice – there is a tendency to group people with disabilities as 'vulnerable'. This group are viewed as lacking resilience, and therefore the capacity or influence to deal with risk or influence their experience (Polack, 2008). However, noted above, there is little evidence of attempts to disaggregate the impacts of climate change for 'vulnerable' people, for example by age, gender or disability (GSDRC, 2008; Polack, 2008; World Bank, 2008). This is despite a person's resilience being inextricably linked with their gender, age, disability and other social characteristics (IDS, 2008). Moreover, as outlined above, there is little on the specificity of impact, as 'disability' is aggregated as one homogenous category, rather than a range of experiences mitigated by a diverse range of factors. This is perhaps due to the lack of tools to assess and understand these complexities and adapt or adjust programmes accordingly.

It is critical to consider who within those countries will face the greatest exposure to risk. It is increasingly clear that climate risk – as with disasters – exposes existing inequalities. The people who face the greatest levels of risk – and therefore require the highest resilience – are likely to be those that face the highest inequality and barriers accessing their rights in everyday life. This includes people with disabilities, women, children, older persons,

minority and indigenous groups, people with chronic health conditions and other contextually marginalised people (Polack, 2008; Levy and Patz, 2015; Action Aid, 2016).

People with disabilities, women, children, older persons and indigenous people are commonly cited as lacking resilience, and considered to face multiple challenges in accessing essential services such as healthcare (CDKN, 2012). People with disabilities are considered to have high levels of sensitivity, but low levels of adaptive capacity (Reid, 2013). There are additional dynamics to the relationship between disability and climate risk, given extreme events can also cause impairments (CDKN, 2012). The health requirements of some people with disabilities may also ensure that their resilience is influenced by the role of caregivers, whose rights and own resilience must also be taken in to account (Patel, 2016).

It is important to restate that 'vulnerability' is context-dependent, and whilst there may be categories of vulnerability, each attribute does not represent a homogenous group. Resilience is different within groups and climate change has differentiated impacts dependent on individual and social characteristics and contextual power relations (IDS, 2008; Mosberg, 2015; NARRI, 2015). As people with disabilities themselves are not a homogenous group, individuals with disabilities have hugely varying degrees of resilience to climatic shocks, depending on a range of factors. Women with disabilities may have very different resilience and vulnerabilities when comparing lived experiences (GPDD and World Bank, 2009; Baldwin, 2014; Nabi, 2014) across a range of scenarios. For example, in the event of an evacuation, crowded shelters with insufficient protection can lead children and women to be at higher risk of sexual abuse (Peek and Stough 2010). This may be attenuated it they also have a disability; if they have no male family members; or if they are poorer than others. Research in other disaster contexts shows how women who are disabled as a result of disasters may be more isolated socially, emotionally and financially than similarly disabled men (Irshad et al., 2005). Acknowledging that vulnerabilities coming from multiple oppression factors increase the exposure to risk, for example to sexual abuse (Aylward, 2010), we can infer that multiple exposure to discrimination can increase vulnerabilities in relation to climate change. The logical extension of this is that reducing these oppression factors can build resilience. Understanding how these characteristics intersect is a first step to this. The literature on the impact of climate is not yet able to demonstrate the impact of multiple exposures, using an intersectional approach. However, academics have started demonstrating the differential impact of climate change on oppressed groups. Mnimbo et al (2016) describe how the specific gendered distribution of work, where women accomplish most of the agricultural tasks, and property, owned mostly by men, leads to women's increased vulnerability to climate change.

Specific resilience might also be uncovered, for example, by exploring the potential of indigenous people's knowledge to protect them from the negative aspects of climate change or disasters. One such example frequently reported is that of the indigenous people living in the Andaman Islands escaping the 2004 Tsunami by being able to identify precursor signs and evacuate in time (Edenhofer et al, 2012). Such knowledge could also be gathered and shared in regard to climate change.

The characteristics that have traditionally been viewed as constituting 'vulnerable' people have to be broken down, and resilience built through the rights of each individual. Critically, the same 'vulnerable' people have the agency to enhance their resilience (Wisner et al, 2004; Emmel, 2017; Grove, 2014). Their perspectives, knowledge and experience are essential for understanding risk, and building resilience. For people with disabilities, this means playing an active role in all stages of the programmes and policies that are designed to build the resilience of all.

Examples of inclusive practice in Climate Change Adaptation (CCA)

The literature suggests there is a scarcity of concrete examples from existing programmes of resilience building with people with disabilities. The search has, though, revealed examples of how organisations are beginning to put measures in place to target people with disabilities in their work; of how social protection could offer potential pathways for enhanced resilience to climate risk; and several examples of how programmes have contributed to enhancing resilience.

Examples of inclusive practice in CCA: Targeting

There is a growing recognition of the requirement to engage people with disabilities evident in the available literature. There are a number of examples highlighting the need to include persons with disabilities, for example, noting that for CCA – and resilience building - to be effective, specific measures for the systematic inclusion of people with disabilities, and other contextually marginalised groups, must be put in place (CBM, 2012; IDDC, 2012; DFID 2015; DFAT 2015) and that people with disabilities must proactively participate in all stages of climate change policy planning, implementation and monitoring (CBM, 2014). However, there are fewer concrete examples of were

Action Aid (2016) have developed a Resilience Framework that has human rights embedded throughout their work and ensuring resilience building is led by local people, with participation (fostered by their participatory vulnerability analysis) as central to their approach. This helps their programmes to target those they identify as the most vulnerable people, including people with disabilities, and implementing contextually appropriate interventions such as ensuring schools are accessible, cash transfers to enhance food security for persons with disabilities and ensuring communication on preparedness reaches marginalised households.

The International Federation of Red Cross and Red Crescent (IFRC) also aims to place emphasis on community ownership, and state they adapt their vulnerability and capacity assessment tools to different local contexts. The IFRC emphasise the importance of understanding the inequitable distribution of power, and the differentiated impacts of climate change (IFRC, 2014). Critically, they recognise that 'gathering community members in a room' may not be appropriate, and that considering power relations and dynamics within groups is important for understanding resilience (Mosberg, 2015: 4). However, this does raise questions about having the tools to do this; and if they do, how effectively such tools are used by agencies to identify persons with disabilities - and crucially - take action (Twigg 2014).

Turnbull et al (2013) highlight how CCA and DRR programmes can be inclusive by setting up support networks to assist with preparedness and evacuations; situating wells and aid distribution in accessible locations; providing fuel efficient stoves to people with restricted mobility; and livestock diversification grants to people with disabilities whose livelihood may be at risk (Turnbull et al, 2013: 24). UN Habitat (2014) also consider disability in their promotion of slum upgrading, which they say is an example of how changing the environment to be more gender- and user-friendly increases security for children, people with disabilities and older persons (UN HABITAT, 2014).

Water Aid (2012) also highlights the importance of ensuring technology and distribution systems are accessible to all, including people with disabilities, pregnant women, children and older people. To Water Aid, consulting with the community is again key; programmes should ensure that local governments use participatory methods and ensure facilities that are accessible to all. Oxfam (2010) also highlight the importance of engaging groups who could be considered powerless or invisible, and list people with disabilities as amongst those likely to feel the greatest impact of climate risk.

Examples of inclusive practice in CCA: Social Protection

A further example of where targeting people with disabilities can build resilience is through social protection programmes (IDS, 2008). Examples in the available literature suggest targeted social protection could offer an opportunity to build resilience. Costella et al (2017) highlight the work of the DFID-funded BRACED consortium. Although not specifically targeted at people with disabilities, the principles outlined in the approach could help build resilience of targeted groups. If specific criteria based on exposure to climate risk could ensure the targeting of people with disabilities in social protection programmes – including social safety nets, insurance, labour market interventions and social services – then people with disabilities could experience enhanced resilience. Considering climate risk in social protection allows programmes to identify those most at risk. The evidence suggests if this is inclusive programmes will inevitably target those that need it most, including people with disabilities. However, the evidence to support this, for example from Social Protection programmes, is weak. The Kenya Hunger Safety Net Programme is an example of targeting chronically poor households. Payment of cash transfers is triggered automatically by satellite-based assessment of vegetation conditions indicating severe drought (Costella et al, 2017: 7). Targeting people with disabilities in the same way offers the potential for enhancing the resilience of people with disabilities, and other highly marginalised groups. People with disabilities and elderly people are among those who benefit from cash transfers delivered through Mozambique's Basic Social Subsidy Programme, although they do face practical and institutional barriers in accessing the scheme (Selvester et al. 2012).

Similarly, UNICEF (2014) explain that by bridging gaps between DRR, CCA and social protection, targeted interventions are an effective tool in building household resilience to social and economic pressure, and dealing with disasters and climate risk. UNICEF focus primarily on children's vulnerability, but as with BRACED, lessons on how they have targeted children in their approach could be applied to people with disabilities in new programmes; though again as yet there is little evidence to demonstrate this. Multidimensional poverty

analyses and vulnerability assessments are required to ensure understanding and participation of all groups. This should allow actors to identify the needs and potential of engaging people with disabilities in targeted climate resilience social protection.

Examples of inclusive practice in CCA: Resilience building

An example of resilience building with people with disabilities is the 'survival yard' programme implemented by CBM in Niger (CBM, 2012). This involved a partnership between a 'mainstream' NGO and CBM following the 2005 drought and subsequent food crisis. The climate has been changing in Niger – one of the poorest countries in the world – with growing seasons becoming shorter. Many people have been migrating from rural Niger to the capital or seeking employment on the coast. CBM and their local partner selected families and clients to introduce the 'survival yard' which aims to provide security for people with disabilities and their communities. This comprises a 25 metre by 25 metre yard, with a water well and watering canals. Borders of trees protect the land inside and create a micro-climate against harsh winds. Harvests provide fruit and vegetables to eat and sell, food for livestock and firewood, enhancing resilience by creating the means and incentives to stay (CBM, 2012: 4).

A similar example from Lesotho is the introduction of homestead and keyhole gardens for populations at risk of food insecurity, to enhance household resilience. A USAID and Food for Peace-funded Consortium for Southern Africa Food Emergency (C-SAFE) involved the community in constructing the gardens to ensure they took ownership of maintaining the gardens and could replicate this practice in future. The introduction of the gardens successfully enhanced resilience to droughts, and food security for people who face barriers accessing employment, including people with disabilities (Turnbull et al, 2013: 29).

Malteser International (2017) presents evidence of the benefits of combining CCA and DRR in a participatory and inclusive way. A project implemented with the Community Empowerment and Resilience Association (CERA) in Rakhine State in Myanmar focused on developing a community-based model for building resilience. By accounting for the diversity of the community through participatory hazard vulnerability and capacity assessments (HVCA), the project empowered participants to develop their own CCA plans. These included: small scale mitigation including building jetties; retaining walls and pathways; preparedness measures (early warning systems, evacuation and rescue plans); and mangrove afforestation to improve coastal protection (Malteser International, 2017: 6). Their report also includes accounts from committee members responsible for evacuations, who explain that they now target older people, people with disabilities, pregnant women and children when warnings are raised. Interestingly, participants also report that the project has sensitised them to the rights of people with disabilities who they previously saw as 'a burden'. Through participating in the project together, people with disabilities are aware of how to increase their resilience, and other community members have a greater understanding of how to assist people with disabilities. Collaboration has also broken down some of the barriers of understanding disability, and created more awareness of disability rights. The report highlights that all community members that were interviews identified older persons, pregnant women, children and people with disabilities as people who may

require support, but also flagged that greater representation of people with disabilities on decision making bodies would further enhance their resilience.

In India, CARE ensured they 'built back better' following Cyclone Aila in 2009 by integrating accessibility into the provision of WASH facilities. Sites for raised hand pumps were selected in consultation with community and council representatives, and community water-user committees were also established for each well. These measures ensured alternative water points are accessible to people with disabilities in an area at risk of climatic shocks (Turnbull et al, 2013: 76).

Practical Action also ensured they enhanced resilience in line with a 'build back better' approach in Sri Lanka (Mitchell et al, 2010). Working with DESMiO, a local NGO, Practical Action established a housing project for people with disabilities and other vulnerable people in the Manmunipattu Division of Batticaloa, which is impacted by a combination of increasing temperatures, drought, rainfall, flooding and cyclones. The project aimed to demonstrate how reconstruction could promote participation, accessibility and cost effectiveness into more resilient housing. Alongside livelihood support and disability rights awareness activities, houses were constructed based on the engagement of people with disabilities in hazard assessment, vulnerability mapping, through interviews and group discussions, and in line with building regulations and technical specifications. Although this was a small-scale project – a total of 16 houses were constructed – the participatory process was shared across the community, and with other NGOs working in Sri Lanka (Mitchell et al, 2010: 19).

Trócaire present a similar example of targeting in reconstruction, through their work in Odisha in India following Cyclone Phailin in 2013, which inflicted significant damage on vulnerable people including tribal and Dalit communities. In their immediate response, Trócaire and their local partners prioritised remote and underserved communities, before focusing on shelter rehabilitation. Understanding vulnerability was a guiding principle and interventions were led by community members to ensure beneficiaries were selected on agreed criteria. This allowed for effective targeting, including female- or child-headed households and people with disabilities (Datta and Furlong, 2015).

An interesting example from the Pacific region may also hold some lessons for resilience building with people with disabilities. Harris (2014) explores the way climate change is being communicated. Although scientific evidence is growing, awareness and education – particularly among vulnerable communities – is often lacking due to cultural and language barriers. The impact is that vulnerable people may not respond to or be aware of policies aimed to build their resilience. In the Pacific, regional organisations have been integrating climate change policy and DRR, and have recognised the importance of education and awareness campaigns, although Harris notes that this communication is largely one way. In response, Harris presents evidence of how participatory media – including community radio, participatory video, digital storytelling, entertainment education and dramas, animation, theatre, music and information and communication technologies – can be been used to empower marginalised groups, including people with disabilities, women and youth, to gain a greater understanding of climate risks. Sharing findings from a project with the Pacific

Gender Climate Coalition from a workshop in Fiji, Harris concludes that creating content across these platforms in a participatory way ensures the perspectives of people with disabilities and other marginalised groups can be brought into the public sphere, and contribute to understanding of climate risk more broadly. They can also offer a powerful, empowering form of storytelling for potentially isolated groups. Although Harris notes that community networks and support for using different media are required for this kind of intervention to be a success, there is potential for linking such interventions with people with disabilities and disabled people's organisations and networks.

Other examples included in this review highlight the importance of consultation with people with disabilities for informing effective CCA and resilience-building. Flower and Fortnam (2015) report that by ensuring that people with disabilities were consulted in participatory hazard vulnerability and capacities assessments in a DIPECHO-funded programme in Cambodia, project staff enhanced their understanding of how people with disabilities were impacted by regular flooding, and 'vulnerable people' including those without family support networks were living in poverty in housing that was not resilient to climate shocks. Plan (2012) also put in place a plan for systematic consultation through ensuring nine people (five women, four men – including one person with disabilities) were selected in each of their working districts to participate in consultations and subsequent research. A 'working for water' programme (UNITED NATIONS, 2010) in South Africa, implemented with the National Department of Water Affairs and Forestry, clears invasive plants which are a direct threat to biological diversity, water security and land productivity. The programme set an employment target of 5% of people with disabilities in its work force (though does not state if it was achieved). Although including a small number of people in consultations, and setting targets, may not directly influence resilience-building due to the complex factors around disability and intersectionality discussed above, this evidence does at least demonstrate some progress in how implementing organisations are considering how to ensure inclusion.

A final example which highlights potential resilience building, comes from a climate and environmental appraisal which was undertaken for DFID as part of the Business Case for Support for the Disability Rights Fund in 2013 (Reid, 2013). Although not focused on evidence of resilience building with people with disabilities, the appraisal highlights the *potential* of working with the Disability Rights Fund and DPOs to increase awareness of climate risks, and to target specific interventions, including in health, education, relief and social protection programmes. Reid (2013) states that creating climate awareness for all development work in climate sensitive countries and building the resilience of the poorest people should be embedded in development work, building on relationships with DPOs and NGOs that DFID and other organisations are already working with to enhance climate resilience would be strategic and represents a significant opportunity.

The evidence above demonstrates there are growing connections between DRR and CCA practice, and that this integrated approach demonstrates positive impacts for resilience-building. There are also opportunities to further integrate with other areas, including social protection, to further enhance resilience-building for the poorest and most at-risk people.

This has led to greater inclusive practice, although it is notable from the available evidence that this is predominantly around including people with disabilities as part of a list of 'vulnerable' groups to engage in resilience building activity. There is less evidence of *how* the resilience of people with disabilities to climate risk has been enhanced by these interventions. To supplement the above evidence, we will now explore potential lessons around resilience building from DRR and humanitarian practice.

Lessons from DRR and Humanitarian practice

Disability and disasters

The relationship between disability and disasters – as with climate resilience – is traditionally under-researched. However, this situation has been improving in the past decade (Kett and Twigg, 2007; Kett and Scherrer, 2008; Alexander et al., 2012; Clive et al., 2013). A survey by UNISDR in 2013 provided an insight into the impact of disasters on people with disabilities. From 5,717 responses from people with disabilities across 137 countries, 85.57% of respondents reported that they had not participated in community disaster management or risk reduction plans; 72.2% said they had no personal preparedness plan; only 14.29% reported an awareness of national plans, and only 17.32% were aware of community-level plans (UNISDR, 2014).

These figures are reinforced by evidence from a Handicap International survey of people with disabilities, DPOs and humanitarian actors which aimed to identify the changes required to deliver inclusive humanitarian response (Handicap International, 2015). Based on 769 responses to three online surveys, 54% of respondents report experiencing direct physical impacts, including new impairments, in humanitarian situations; 27% report psychological, physical or sexual abuse; and 'three quarters' of respondents report that they have not had adequate access to water, shelter, food or health services. 'Half' of the respondents also report that they cannot access the specific services they need, including assistive devices, access to interpreters and rehabilitation. Interestingly, 85% of humanitarian actors responding in the survey recognise that people with disabilities are more vulnerable during disasters, yet 92% of those respondents do not believe people with disabilities are properly accounted for. More positively, 63% state they have developed or are developing specific policies or projects to address this; and 56% also believe more coordination between humanitarian actors, specialised actors and DPOs should be a priority (Handicap International, 2015).

A 2012 literature review on the relationship between disability and disasters (Smith et al., 2012) identified four main factors that increase the vulnerability to disasters of people with disabilities. These are summarised in **Table 2**.

Further evidence highlights the role that poverty and barriers to accessing livelihoods play in shaping risk, how contextual social factors can increase risks for women, and how people with disabilities face reduced mobility due to widespread existing inaccessibility of the physical environment, which can then be dramatically altered by the changing environment (Sightsavers, 2015).

Table 2: Evidence of the increased vulnerability of people with disabilities to disasters

1. Lack of data, information and knowledge of people with disabilities. A lack of data and information often means people with disabilities, their locations and requirements are unknown to project implementers and policymakers. Their specific requirements are therefore not understood or accounted for. Inaccurate census and national or programme data can also result in people with disabilities being excluded from receiving relief as they are not registered with government systems or targeted by programmes in an appropriate way.

2. Exclusion from all stages of disaster risk management. As people with disabilities, their networks and organisations rarely participate in risk assessments and subsequent programme design their value in shaping appropriate measures is often unknown. The result of their absence from decision making processes is that implementing agencies have little understanding of disability issues; un-inclusive and inaccessible guidelines and programmes; and inaccessible reconstruction efforts.

3. Inaccessible disaster preparedness measures, warnings and facilities. Warning and evacuation systems are often inaccessible to people with sensory disabilities, whilst shelters designed to protect the community are often difficult to access, lacking ramps, railings, accessible toilets and sanitation facilities. Vital relief distribution is also often concentrated through these inaccessible shelters or distributed inaccessibly in the community, with no provision for ensuring people with disabilities access relief.

4. Stigma and discrimination. Stigma associated with disability leads to human rights abuses, which are heightened in a disaster context of limited resources. People hidden from society are extremely vulnerable, whilst others experience high levels of robbery, physical and sexual abuse at overcrowded shelters and camps.

(Smith et al., 2012)

The need for more inclusive DRR and humanitarian approaches is clear. Recent crises in Nepal – where research indicates that DRR activity failed to include people with disabilities and where most emergency information was not accessible (Lord et al., 2016) – Syria and the Ebola outbreak in West Africa (IDS, 2014) continue to demonstrate that people with disabilities – despite the commitments outlined in Article 11 of the UNCRPD (United Nations, 2006) – remain excluded from the majority of DRR planning and emergency response.

Inclusive DRR and humanitarian guidance

Ensuring inclusion is incorporated into DRR and humanitarian response is pivotal. Inclusive disaster risk management reflects contextual diversity and respects human rights by ensuring all people can participate in decision-making, it allows for tailored approaches and strategies, and it removes barriers (MCCR, 2015). Crucially, inclusive practice also recognises that women, people with disabilities, children, displaced people, older persons, indigenous populations, migrants, youth and other contextually marginalised groups are likely to face

high exposure to risk, and should play an active role in contributing to building community resilience, and scaling up and bridging the gaps at local, national and international levels (GFDRR, 2015).

The need for more inclusive practice is reflected in a growing number of guidance documents, toolkits and standards (Handicap International and ASB, 2011; CBM, 2013; Inclusiva, 2013; Malteser International 2013; Alexander and Sagramola, 2014; INCRISD, 2014; UNESCAP, 2014; Help Age, 2015; MCCR, 2015; Malteser International, 2017). Encouragingly, some guidance even calls on practitioners to consider who is being excluded based on analysis of power dynamics, and that this will 'go beyond' just considering disability, gender and age but also how these factors interact with each other and other social characteristics – for example location of employment – to determine levels of resilience (MCCR, 2015: 19). This is an important point that cuts across simple categorisation by using an intersectional analysis framework to unpack vulnerabilities and resilience. Much work remains to be done in the climate change and resilience sector, however. Similar work on gender and intersectionality around the theme of sexual violence demonstrates that there is an accumulation of oppressions for women and marginalised groups with disabilities (Aylward, 2010). Therefore a structured approach to fact finding needs to be applied to climate change and resilience building.

At the global level, the Sphere guidelines (2011) have been singled out for ensuring disability is a crosscutting issue and key actions for ensuring inclusion are outlined to ensure inclusive humanitarian response (CBM, 2014; Stough, 2015).

By reviewing the available guidance on inclusive practice, it is possible to identify a number of themes that compose inclusive DRR or humanitarian practice:

- A **twin-track** approach of ensuring people with disabilities can access all DRR and relief services, and providing targeted interventions (DFID, 2004; HI, 2009; CBM, 2013).
- Processes for ensuring the **participation** of people with disabilities in all stages of preparedness and response through effective analysis and mapping (GPDD and World Bank, 2009; CBM, 2013; BMZ, 2013). This may include reaching out to people who are isolated or are unable to leave their home (MCCR, 2015).
- The active **engagement and representation** of people with disabilities in decision making bodies and the leadership roles of people with disabilities in informing practice (DiDRR Network, 2014; MCCR, 2015).
- **Awareness raising** of preparedness measures amongst people with disabilities, and of their rights during disasters and everyday life amongst the wider community (Alexander et al., 2012; MCCR, 2015).
- **Accessibility** that is embedded across the physical environment, in communications, and in reconstruction so that barriers that restrict mobility and communication are removed or addressed, and that actors recognise reconstruction is an opportunity to 'build back better' in line with principles of universal design (Handicap International, 2009; CBM, 2013; UNESCAP, 2014; Lord et al, 2016)

- **Non-discrimination** and **addressing stigma** is integral. Non-discrimination should be reflected in all policies and programmes, while addressing discrimination and abuse underlines the success of all practice (CBM, 2013; MCCR, 2015).
- **Coordination and collaboration** is required between the diverse range of actors in disaster and humanitarian response, the government, and people with disabilities and their representative organisations, to draw on and share knowledge of how to realise inclusion in practice (CBM, 2013; MCCR 2015; Lord et al., 2016).
- **Capacity building** of different stakeholders on disability rights, and of people with disabilities and their respective organisations to engage other stakeholders and wider civil society (Lord et al., 2016).
- **Effective advocacy** by building on existing networks and through coalitions to ensure people with disabilities can represent themselves, and influence others to work together to deliver inclusive practice (DiDRR Network, 2014; Lord et al., 2016).
- **Data disaggregated by disability and other characteristics** will help to determine differential impacts and identify people who have specific needs and capacities that must be accounted for to ensure they have the capacity to cope in all stages of a disaster (Alexander and Sagramola, 2014; MCCR, 2015).
- **Technology** such as GIS has the potential to play a greater role in helping to prepare and protect people with disabilities during disasters. Through satellite and mobile phone technology improved warning systems could play an even greater role (Alexander et al., 2012)
- Critically, inclusive practice should build the resilience of people with disabilities through effective **empowerment**. Inclusive practice should lead to people with disabilities having a greater voice and agency over the decisions that impact their resilience to the impacts of disasters and their everyday lives (Alexander et al., 2012; Kelman and Stough, eds, 2015).

Lessons for climate resilience – examples of inclusive practice

As the above themes are identified as constituting good practice, the following section reviews examples found in the available literature that match each of the identified themes.

There are several examples that match the criteria of an effective **twin-track approach**. In terms of ensuring 'mainstream' activity is inclusive, in India, the Emanuel Hospital Association operates in a number of disaster-prone areas. Working with CBM they established a disaster preparedness programme to explore inclusion across eight states. Disability was considered across all the project activities. This included ensuring the first aid guide was available in Braille and that disaster management committees were accounting for the needs of people with disabilities. The project provided a replicable model of disability-inclusive hospital preparedness plans which demonstrate that adaptations are not complicated or expensive; and by bringing DPOs, health practitioners, and 'mainstream' actors together, awareness has been raised and collaboration is likely to continue (CBM, 2013).

CBM have also been working with local partners to address food security risks in an inclusive way. Working with Intermon Oxfam in Ethiopia they developed a clear aim to mainstream

disability through a disability-specific assessment. This not only contributed to greater staff awareness of the challenging context for people with disabilities in the programme region, it also raised awareness of the importance of ensuring inclusion amongst project staff (CBM, 2013: 24). Similarly, in Niger, support was being provided for households most affected by the Sahel food crises in 2011 and 2012. CBM, working with Karkara, ensured households with people with disabilities received targeted cash transfers in the dry season (CBM, 2013: 33). In Kenya, working with SPARK, CBM set up food distribution clusters, which have evolved into self-help groups of mothers, including women with disabilities. Each group received seeds for drought-resistant crops, and cattle and livestock to build their assets, which were lost during the droughts (CBM, 2013: 27).

In education programmes, Save the Children have been working with government ministries in Central Asia to include school safety guidelines in national curricula. Over 1,000 students have been trained in disaster response, child rights and CCA. Save the Children have also trained community teams on the importance of protecting children. The trainings were then adapted to ensure they reached 928 children with disabilities (Save the Children, 2015). In the Philippines, there have also been efforts to ensure the DRR and management module in the school curriculum is made more disability-inclusive. However, Sagun-Ongtangco et al (2015) conclude that this is still proving to be challenging due to facilitators lacking the capacity to respond to the needs of students with disabilities, getting buy-in from students and ensuring community members participate in the overall module.

Effective twin-track programmes are also about ensuring targeted interventions for people with disabilities. Malteser International (2017) demonstrate how they are ensuring that early warning systems are established for people who are deaf or who have visual impairments so that all people can understand the calls to action. Malteser and CBM are also ensuring a twin-track approach in Vietnam, initially targeting people with disabilities with specific training for them and their families, before ensuring their inclusion in village disaster risk management plans that will formulate agreed early warning systems and evacuation plans (CBM, 2013: 18).

In Bangladesh, the Centre for Disability and Development conducted an assessment in Sreepur Union that demonstrated how the daily challenges people with disabilities face in accessing safe drinking water and latrines were exacerbated during emergencies. Interventions were then implemented to reconstruct accessible and flood-proofed houses, tube wells and latrines that function during disasters. Flood proofing included raising plinths and planting trees to prevent soil and assets washing away (CBM, 2013: 17). In Nepal, Handicap International built on existing resources and staff from a previous project to continue inclusive practice, and ensured that the families and caregivers of people with disabilities were also included in all efforts, due to the critical role they may play in providing everyday support and in evacuations (DiDRR Network, 2014).

Evidence of ensuring the **participation** of people with disabilities also demonstrates a range of methods. In Yogyakarta, Indonesia, Arbeiter-Samariter-Bund (ASB) conducted a project to ensure the participation of out-of-school children with disabilities. As many children with disabilities do not attend school, they do not access the same information – including on

preparedness. ASB applied the 'train a trainer' format to reach out: they provided training to government and DPO officials at sub-district level; who in turn trained cadres at the village level; who then provided information on DRR to out-of-school children with disabilities. The project has also benefitted the families and neighbours of children with disabilities, who have also received training and conducted drills. The programme itself helped to demonstrate that many people with disabilities can be reached without extensive funds or requiring technical experts (Raja and Narasimhan, 2013).

Another approach for ensuring participation is through engaging people with disabilities in assessments. Plan (2016) have been ensuring people with disabilities from the community participate in project activities, starting with the initial climate vulnerability and capacity assessment (VCA). Plan are also clear that participation of people with disabilities is not about meeting a quota, but ensuring people with disabilities play an active role. Few et al. (2015) report that GOAL were noted by people with disabilities for listening to their concerns and acting on their recommendations after effective consultations through VCA during post-earthquake reconstruction in Haiti. However, research indicates that disability remains a neglected issue in VCA practice and that VCA manuals and guidelines, whilst promoting the general ideal of inclusiveness, are insufficiently aware of the challenges to achieving this in practice and do not give enough guidance on how to reach and include persons with disabilities (Twigg, 2014).

A number of organisations present evidence of interventions that led to the **engagement and representation** of people with disabilities on decision-making bodies. This has been particularly successful in Bangladesh, where participants in a number of programmes have successfully engaged their local disaster management committee and demonstrated the importance of decision-making at the local level, reflecting the rights of people with disabilities. This has resulted in the representation of people with disabilities on disaster management committees and cyclone preparedness programmes that plan all stages of disaster response at the local level (United Nations, 2010; CBM, 2013; Islamic Relief, 2013; Sightsavers, 2015).

Similar examples from other countries reflect this progress, including Vietnam, the Philippines, and Myanmar, where people with disabilities are also now represented on decision-making bodies (Malteser, 2013; DiDRR Network, 2014). In Indonesia, one programme led to some villages insisting that representation of people with disabilities was compulsory on disaster risk management committees, which was officially acknowledged in local government regulations (Handicap International and ASB, 2011).

Engagement also demonstrates how the implementing partners or decision-making bodies themselves need to change. In Myanmar, NGO representatives facilitating a village meeting were confused when a man sat through a meeting without saying anything. Eventually he was asked to share his views but did not respond. The facilitators had not realised that the man was Deaf, and realised that they had put no measures in place to be able to communicate effectively with him. This highlighted the need to ensure communication formats are adapted so that they are inclusive, and of ensuring people with disabilities are represented, and are able to actively participate. Other villagers also realised that up to that

point, no people with disabilities were participating in the planning meetings, despite knowing they lived in the village. The absence of people with disabilities from risk planning undermines community resilience, so their engagement and representation is key (MCCR, 2015).

Effective participation, engagement and representation help to raise awareness of the rights of people with disabilities. Potential **awareness-raising** activities are frequently listed in the guidance reviewed above. However, there were fewer examples in the literature of specific awareness-raising activities that have increased resilience. One project in the Philippines trained women and men with disabilities to present a weekly radio programme in rural areas. The programme is an effective tool for promoting key messages on disability rights, DRR and inclusive disaster risk management to the wider community (DiDRR Network, 2014).

There are more examples of ensuring **accessibility** in the literature. It is known that people with disabilities worldwide face a range of problems in accessing and using public emergency shelters (Twigg et al. 2011). In Chittagong, Bangladesh, people with disabilities have traditionally not travelled to cyclone shelters as they are not accessible, either evacuating long after initial early warnings or not at all. Effective engagement between DPOs and government officials has led to the formation of Shelter Management Committees, which have then acted on the recommendations of people with disabilities. The resulting upgrading of shelters – including construction of ramps, accessible toilets and water points – has created accessible shelters that people with disabilities feel confident using, as they proved in evacuations for Cyclone Mahasen in 2013 (DiDRR Network, 2014: 23). Also in Bangladesh, boats that are frequently used for evacuations are not usually accessible. The Centre for Disability in Development has constructed an accessible boat to be used in evacuations, which has ramps and accessible latrines. Ensuring the accessibility of boats used for evacuation is an opportunity to integrate inclusion, as boats can be modified with flat floors, ramps and rails (Bari and Saha, 2012; Raja and Narasimhan, 2013).

Many of the examples included in this search promote rights-based approaches, and are therefore based on principles of **non-discrimination.** Although the search has not yielded examples of activities that specifically **address stigma** it is interesting to note that several examples demonstrate addressing discrimination and changing attitudes through the participation of people with disabilities and exposure to their rights. One of the key lessons in the work of the Emanuel Hospital Association in India was that negative attitudes towards people with disabilities made planning and implementing a disability hospital preparedness plan challenging. People with disabilities had not been considered as being able to contribute before. They faced high levels of stigma, which only reduced through the gradual process of engaging people with disabilities in community work and planning. Although not the direct objective of the initiative, this engagement has proved to be an excellent way of sensitising the wider community (CBM, 2013: 12). Inclusive DRR projects in Myanmar also report that participants expressed that their previously discriminatory views regarding disability had been changed by sensitisation and engaging people with disabilities in their communities (MCCR, 2015; Malteser International, 2017).

Evidence of cross-stakeholder **coordination and collaboration** demonstrates the roles different stakeholders can play. In the city of Baños de Agua Santa in Ecuador, a project developed by the Technical Secretariat for Inclusive Disability Management promotes the rights of people with disabilities in all stages of risk management (UNISDR, 2015). In Thailand, after a campaign to make disaster management exercises inclusive, the Royal Thai Armed Forces invited the Council of Persons with Disabilities and other civil society organisations to join government bodies and private sector actors in taking part in the Thailand-Cambodia Joint and Combined Exercise on Humanitarian Assistance and Disaster Relief. This resulted in greater engagement between the Council and actors responsible for disaster planning, and has led to more inclusive practice (CBM, 2013: 7).

NGO collaboration can also have a large impact. The DiDRR Network (2014) utilises collaboration and information sharing across a wide network of actors[5]. The Myanmar Consortium for Community Resilience (MCCR) is made up of five INGOs working with six national partners. The MCCR is working to operationalise inclusive community-based DRR focusing on four groups: women, children, older persons and people with disabilities. The structure of the forum provides an effective platform for sharing expertise and ensures organisations can provide technical support in terms of inclusion and DRR (MCCR, 2015).

Coordination and collaboration is also relevant to the UN Cluster system. In Haiti, after the 2010 earthquake, the Education Cluster led by Save the Children and UNICEF ensured the rights of children with disabilities were incorporated into the reconstruction of schools. Questions on disability were included in a survey shared with 3,700 schools, the Cluster worked with Handicap International and the WASH Cluster to advocate for accessibility, and engaged the Inter-Agency Disability Working Group to discuss inclusive education. Interestingly, they also met with resistance from some NGOs who did not understand the need for inclusive approaches (Raja and Narasimhan, 2013: 50).

Capacity building is evident in a number of examples in the literature. Programmes across a range of countries including India, Indonesia, Vietnam and Bangladesh have established groups of people with disabilities, and in some cases broader groups including women, older persons and caste members, and supported them to meet frequently and build their knowledge of disasters and their rights. This process results in greater confidence of the members to lobby and engage in decision-making bodies and advocate for their rights. In a number of cases this has led to the successful influencing of government departments and representation on DRR committees (BMZ, 2013; Malteser International 2013; DiDRR Network, 2014; Sightsavers, 2015; UNISDR, 2015). In Indonesia, ASB worked with their DPO partners to establish a DRR information sharing mechanism using women's groups; conduct advocacy, networking and planning with government agencies; and facilitate further community-based planning. Through this engagement, the programme contributed directly to government efforts to establish DRR forums at district level (DiDRR Network, 2014).

[5] Disability Inclusive Disaster Risk Reduction Network members

A critical part of realising inclusive practice is **effective advocacy** to influence the change that is required. ONG Inclusiva in Chile have a history of successful advocacy, to the point that they were recognised with the 2014 Risk Award led by UNISDR, Munich Re and the Global Risk Forum. Inclusiva successfully lobbied for a permanent place on the Emergency Local Committee of Peñaflor Town. From that position, they influenced the removal of a range of architectural, cultural and technological barriers for people with disabilities, which have resulted in Peñaflor being declared a Safe Community and member of UNISDR's 'Making Cities Resilient' Campaign (GNDR, 2015: 9).

The National Forum of Organisations Working for the Disabled (NFOWD) in Bangladesh have also demonstrated their ability to advocate successfully on inclusion (Alexander et al., 2012). NFOWD have a long history of advocating for the rights of people with disabilities during disasters, and in December 2015 co-hosted the Dhaka conference on Disability and Disaster Risk Management with the government of Bangladesh, which was organised to identify actions for implementing the Sendai Framework in an inclusive way (Dhaka Declaration, 2015). Collaborative advocacy between organisations, and building on existing networks, has also led to concerted efforts for new regulations on inclusive disaster risk management in the Philippines and Indonesia (DiDRR Network, 2014).

Given the recognised gap in availability of disability **data** across development practice, it is perhaps unsurprising that this search did not yield many examples. One DPO in Pakistan has however made use of disability data during rescue and rehabilitation following the floods in 2010. The Special Talent Exchange Progamme (STEP) anticipated that people with disabilities and older persons would face greater risks, so established the Information Resource Center on Disability. This comprised a computerised database which connected STEP's online portal and the central crisis centre of the Red Crescent Society of Pakistan. By including national identity card numbers, the database provided information on individuals' locations and information on the support they might require. The database allowed for the easy identification of people with disabilities with national identity card numbers; ensured they could be targeted with information, relief services and social protection systems; and allowed STEP to provide technical advice on ensuring greater accessibility in different sectors (Khan, 2011; CBM, 2013). This example demonstrates the potential of acting on better data on disability. It is therefore encouraging that the ADCAP Minimum Standards for Age and Disability Inclusion in Humanitarian Action call for, and provide guidance on, the collection of data disaggregated by sex, age and disability (Help Age, 2015). Handicap International have also recently initiated work on a DFID-funded disability-disaggregated data project in emergencies project, across three countries, which in turn is connected to DFIDs recent focus on disability and tracks sex, age and disability-disaggregated data.[6]

The T search yielded no examples demonstrating the use of **new or innovative technology** in helping to protect and prepare people with disabilities in low- and middle-income countries in situation of risks. The proliferation of cloud computing, open-access mapping,

[6] Handicap International are piloting the Washington Group Short Set of Questions in an action research project in Jordan, the Philippines, and the Democratic Republic of Congo funded through the START Network.

smartphones and mobile networks does however ensure there is great potential for the role of information and communications technology in promoting inclusive DRR.

Finally, a number of the above examples speak directly to the forms of **empowerment** that are critical for inclusive disaster risk and humanitarian practice to be a success. They demonstrate that through inclusive practice, people with disabilities have enhanced their resilience to disasters. They are aware of the warning signs, have clear plans of action and the wider community know how to provide support (Malteser International, 2017). Through accessing this knowledge, people with disabilities gain increased confidence to engage in the decisions that impact their lives, and can also help build the resilience of others. Women with disabilities in Vietnam have used the knowledge gained through a CARE and Women's Union community-based disaster risk management project on coping with disasters, reducing risk and preventing diseases during floods to plan and organise information for other women in their villages, particularly targeting single women. As with many of the examples included in this review, participants have unfortunately already had to test their knowledge during new disasters, but they reported being aware, confident and feeling empowered to deal with the risks (United Nations in Vietnam, 2012). A disability-inclusive disaster preparedness programme in Bangladesh also demonstrates the forms of empowerment that can be fostered by participation in inclusive programmes. People with disabilities that participated in self-help groups formed by Sightsavers and Disabled Rehabilitation and Research Association developed increased knowledge of disaster preparedness and disability rights; accessed livelihood opportunities and existing welfare support that they were not previously aware of; and gained the confidence to lobby local governance structures. This resulted in the bodies responsible for disaster preparedness at the local level engaging people with disabilities, and by the end of the project 11 out of 12 Union Disaster Management Committees had representation of people with disabilities on the Committee, helping to shape the decisions on how Unions prepare for disasters (Sightsavers, 2015).

DISCUSSION

The above review demonstrates a limited but growing amount of evidence of inclusive practice in DRR and humanitarian contexts. This is predominantly found in grey literature in NGO reports and guidance. A key lesson from the experiences of the DRR sector has been that it is possible to effectively include persons with disabilities, particularly in community-based initiatives (see for example CBM, 2013). Whilst the vast majority of the evidence is from Asia, with few notable exceptions, it is hoped that this project, which gathers empirical data in Kenya, as well as Bangladesh, will make a potentially particularly significant as a contribution to this knowledge gap.

However, there are useful lessons emerging for resilience building, and the themes that emerge from good practice. These include: an effective twin-track approach of ensuring all practice is inclusive, and providing targeted support where this is required; ensuring participation of people with disabilities; engagement and representation of people with

disabilities on decision-making bodies; raising awareness; ensuring all forms of accessibility, and that post-disaster reconstruction 'builds back better'; non-discrimination and addressing stigma; coordination and collaboration; capacity building; effective advocacy; the collection and use of disability data; opportunities for new technology; and critically, the overall empowerment and enhanced resilience of people with disabilities.

Climate change and other at-risk people

As noted throughout this review, an individual's resilience to climate risks and disasters is shaped by a range of existing inequalities, individual and social characteristics, and how these factors intersect and interact. In terms of understanding disability, it is worth reviewing evidence of climate and disasters focused on other people traditionally grouped as 'vulnerable'. However, given that climate risk and disasters expose existing inequality and power relations, it is indicative that the majority of evidence available – as with disability – highlights the risks rather than providing evidence of resilience building. Nevertheless, increasingly research is focusing on the agency of women, young and old people, as shown in the following section.

Heightened vulnerability for at risk people

Children face heightened risks to the impacts of climate change through a diverse range of factors. The World Health Organisation estimate that 88% of the burden of disease attributed to climate change impacts children under five. Children are especially susceptible to waterborne and vector-borne diseases. Food and water shortages lead to increased childhood malnutrition, and present additional barriers accessing school. During disasters, children may rely on the support of their parents, and may be separated from them (Levy and Patz, 2015: 314). Climate risks and disasters also threaten the livelihoods of the poorest households, some of which resort to coping strategies that are harmful to children, including selling assets that undermine poverty alleviation and withdrawing children from school (UNICEF, 2014). In the long-term this can impact children's potential future employment, and capacity to migrate (Polack, 2008), and in some cases in the immediate context children may be forced into work and exploitation by families seeking to recover lost income (IDS, 2008). The relationship between children and climate change is pivotal, given the young population in many countries. The government of Cambodia noted in a Human Development Report (2013) focused on building resilience, that their young population is facing many challenges in the changing climatic environment.

The relationship between **gender** and climate risk is relatively the best researched area in terms of at-risk groups (GSDRC, 2008). Women are disproportionately impacted by climate change as in low-income countries they are primarily responsible for gathering food, water and fuel for households, all of which are likely to become less available (Levy and Patz, 2015). Along with these responsibilities, women are often expected to care for children and other family members. During times of disaster this can leave them dangerously exposed to diseases and the direct impacts of hazards. However, carers have rarely been identified as in need of specific support or inclusion; rather the focus has been on who they care for - though the above mentioned ADCAP project is attempting to redress this gap and is including carers as a specific focus, Women are also likely to have reduced social mobility in

comparison to men, including access to employment, financial resources and even through social taboos that limit their capacity to evacuate or be physically contacted. High rates of physical and sexual abuse are also startlingly common during extreme events and at shelters and camps (Sightsavers, 2015; Malteser International, 2017).

The capacity of **older persons** to adapt to climate change can be impacted by changes to family networks, responsibilities for caring for orphaned grandchildren, migration and lack of adequate social protection mechanisms. Older persons are particularly at risk from heat stress, malnutrition, barriers to accessing health care and the need to travel long distances (GSDRC, 2008; IDS, 2008). Older people's capacity to evacuate extreme events may also be limited by intersections with poverty, disability, poor health or social isolation. Older people may also be left behind, as others migrate or are displaced, increasing their vulnerability to disasters. Discrimination can also impact adaptive capacity, as some families and communities think older people will slow them down, whilst prolonged displacement can have a hugely detrimental impact on family ties and community support (Help Age, 2015; Hartog 2014; Byrne and Harris 2015;). Help Age's study on humanitarian financing (2010) emphasises the gaps and importance of addressing the inclusion of older persons – they found an alarming disparity between the needs of older persons and the humanitarian assistance that is provided (Help Age, 2010).

The relationship between **indigenous people** and climate risk is in many cases intertwined due to their often close relationship with natural resources, and location in highly sensitive zones, including forests, wetlands, coastal, river, polar and arid areas. Indigenous populations are also impacted by some efforts to mitigate climate risk, including biofuel production, carbon sinks, large-scale renewable energy projects and some mechanisms associated with reducing emissions through deforestation and degradation (Polack, 2008: 18; Levy and Patz, 2015).

Approaches for building resilience of at-risk groups

As with effective approaches for building the resilience of people with disabilities, available literature on other at-risk groups emphasises the importance of strengthening their participation in interventions, and engagement and representation on the bodies responsible for decision making (GSDRC, 2008). This includes ensuring that the assessments and tools used to inform design are age, gender, and disability sensitive and account for the different social dynamics at play (Mosberg, 2015). This meaningful participation informs all stages of effective and inclusive DRR and CCA (Baldwin, 2014). Critically, it ensures interventions account for the different roles that individuals play. In Myanmar, women play a greater role organising and mobilising others during evacuations, so Myanmar Consortium for Community Resilience (MCCR) ensured women were actively involved in training and took leadership roles in DRR and emergency response. They also included specific awareness-raising sessions on how women's strengths and leadership could help build the resilience of the wider community.

Ensuring systematic participation is also critical for developing understanding of how the intersections between these different factors influence resilience: for example, how an older woman with disabilities can access enhanced resilience through inclusive

interventions. Empowering people to build their resilience is key (GFDRR, 2015). An example from Honduras illustrates many of the aspects that make disability-inclusive interventions successful. Women are leading disaster and climate resilience through a collaborative partnership between women's groups and government agencies. Grassroots leaders, women and officials have collaborated and developed training on local resilience building that the women are now taking back to their communities and beyond. In Kenya, Shibuye Community Health Workers work with over 2,000 health workers from farming communities. They sought the guidance of older women, and their knowledge of traditional practices, to support farmers to preserve seeds, conserve soil and store food in response to droughts, floods and the changing climate. This initial engagement resulted in government ministries recognising the rights of women farmers and providing further technical input (GFDRR, 2015: 13).

For children, the right to education, good health, and living and growing in safety – in line with the UNCRPD – is relevant to all aspects of building resilience. Education itself is described as an insurance for ensuring the future resilience of all people (Polack, 2008; Plan 2012; World Vision, 2013). Building the resilience of children can be achieved through ensuring they are targeted and participate in all interventions, and through targeting sectors dominated by children, such as education and health (Mosberg, 2015). Working with schools and the education sector to ensure children are aware of disasters through appropriate exercises and awareness-raising, ensuring school environments are safe, and that the curriculum is inclusive, are different examples of ensuring children are engaged in resilience building (MCCR, 2015; Plan, 2015; Save the Children, 2015; Ronoh, 2017). Crucially, this recognises children's agency and the role children can play in shaping resilience. MCCR has facilitated engagement between children, teachers, and the wider community to ensure that the contribution children can make to DRR efforts is recognised in Myanmar. This has shifted focus away from concentrating on children's vulnerabilities, to their contributions to decision-making (MCCR, 2015: 23). Unfortunately, the literature suggests that the role that children and other at-risk groups of people can play in building resilience is currently largely overlooked in research, policy and practice (Ronoh et al, 2015).

The literature review highlights a range of key themes emerging from the literature. However, it also outlines clear gaps in the literature around the successful inclusion of persons with disabilities in climate-related resilience activities and research. The intersection of impairment and other situations of exclusion, marginalisation and risk also need to be further explored. It is also clear that, to date, climate researchers have largely ignored the impact of climate on the lives of persons with disabilities.

CONCLUSION

This review has noted that it is important to understand that an individual's resilience to risks is shaped by existing inequalities, individual and social characteristics, and how these factors intersect. In much of the available literature on climate change and DRR, there remains a prevailing trend that 'vulnerable' people are grouped together. People with disabilities, women, children, older persons and indigenous people are commonly grouped together under the 'vulnerable' banner. People with disabilities themselves are not a homogenous group: individuals with disabilities have hugely varying degrees of resilience to climatic shocks. To understand and work with people who are considered at risk to truly enhance resilience, the characteristics that have traditionally been viewed as constituting 'vulnerable' people have to be broken down, and resilience built through the rights – and capabilities – of each individual.

Perhaps most importantly, it must be recognised that the same 'vulnerable' people have the right and agency to build their own resilience. Recognising these rights is critical for building resilience. Their perspectives, knowledge and experience are essential for understanding risk, and building resilience. For people with disabilities, this means playing an active role in all stages of the programmes and policies that are designed to build resilience. Unfortunately, this review has noted that the available literature tends to emphasise vulnerability to climate risks, the impacts of disasters and vulnerability in everyday life, and that there are fewer examples of how to enhance the resilience of 'vulnerable' people.

A review of climate literature has shown that there is a shortage of concrete examples of building the resilience of people with disabilities to climate risks in the available literature. There are however signs that some organisations are starting to target people with disabilities, that social protection may offer opportunities to enhance climate resilience with people with disabilities and other at-risk groups, and that there are some examples of specific interventions that offer useful lessons for inclusive resilience building.

There are more examples of inclusive practice in available evidence of DRR and humanitarian practice, where this review noted a number of themes that constitute good practice. These are: an effective twin-track approach of ensuring all practice is inclusive, and providing targeted support where this is required; ensuring the participation of people with disabilities; the engagement and representation of people with disabilities on decision-making bodies; raising awareness; ensuring all forms of accessibility, and that post-disaster reconstruction 'builds back better'; non-discrimination and addressing stigma; coordination and collaboration; capacity building; effective advocacy; the collection and use of disability data; opportunities for new technology; and critically, the overall empowerment and enhanced resilience of people with disabilities. However, it should be acknowledged that most of these recommendations are still to some extent aspirational and as yet there is very little empirical evidence of impact on the lives of persons with disabilities.

The review also demonstrated that what constitutes good disability-inclusive practice is also true for other people who are considered at risk. Evidence focusing on women, children, older persons and indigenous people – which also predominantly highlights their

'vulnerability' – also identified the importance of participation and engaging in programmes and decision-making bodies to demonstrate leadership and help build resilience.

The available evidence has also shown that there is increasing evidence to suggest that the most effective and sustainable approaches to dealing with the risks posed by climate change, disasters and widespread poverty are connected, and therefore efforts to deal with their threats – and build resilience to them – should be integrated. To succeed, a more integrated, participatory approach to building resilience must also be inclusive. This review has presented examples of good practice from the available literature, and highlighted opportunities to ensure this, such as building on existing networks of DPOs and NGOs to reach out to people with disabilities to enhance climate resilience.

However, the review has also highlighted a large number of gaps in what we know with relation to climate resilience and disability. Specifically, it is clear that whilst the intersections between an impairment and other situations of exclusion, marginalisation and risk (including age, gender, location, power) are acknowledged as important, to date there is limited literature that explores – or measures – evidence of how these different layers intersect; nor how this impacts on individuals and communities resilience and capacities. There is also a lack of data on what (if anything) has worked effectively within the climate sector for persons with disabilities specifically, rather than assuming they are included under the umbrella of 'vulnerable' or 'at-risk' groups. This is in part due to the tendency to treat persons with disabilities as a homogenous group, with little differentiation of the range or severity of impairment types. To some extent, the same principles of equity and inclusion should apply to all persons with disabilities; however this is not the case in practice, and is mitigated by a number of factors, including even legal capacity and where they live, as well as a host of other factors which can be assumed to impact on their climate resilience.

In summary, for the Paris Agreement, Sendai Framework and Agenda 2030 to be realised in practice, the rights of people with disabilities must be embedded in resilience building, disaster risk reduction and poverty alleviation efforts. The effective participation, engagement and empowerment of people with disabilities – and other people considered to be at high risk – will ultimately be critical to their success. In order to achieve this, inclusive practice must emerge that ensures the systematic inclusion of people with disabilities in programmes and policies designed to build resilience, and that empower people with disabilities to play an active role in the decisions that impact how climate risk, disaster mitigation and poverty alleviation are planned for and implemented.

In order to build in these, the team here has a series of further research to undertake in order to build on the evidence available and address some of the gaps. These are as follows:

- The team will develop a tool that explores multiple and overlapping exposures to climate change, using an intersectional approach. Questions will attempt to draw out existing social divisions and inequalities, how these reinforce (or otherwise) existing social relations; what programmes and policies are in place to bolster individual and

community resilience; and what if any examples there are of where the resilience of people with disabilities (defined as adaptive, anticipatory and absorptive capacities) to climate risk has been enhanced by these interventions. Developing a tool that is both sensitive enough to measures specificities while being used in the field will then be the challenge.

- The internet based survey will be shared with a range of actors in the climate sector, including, but not limited to, international and national NGOs, DPOs and their constituents, policymakers, academics, opinion formers and medias.
- The survey data will be supported by more in-depth qualitative data from the two country studies (Kenya and Bangladesh). Where possible, disability data will be disaggregated according to type of impairment and level of difficulty (using the Washington Group Short Set Questions) in order to try and gain a better understanding of experiences; and how these effect resilience or vulnerability
- The results will be systematised to identify a set of principles that can be applied to national and global solutions, and to identify mechanisms to build individual and community resilience in these various circumstances
- From the evidence presented here, we can already warn of the dangers of over-simplification – as with definitions (e.g. of resilience), there is a danger of homogenising issues around disability which in turn perpetuates existing exclusions and hierarchies. Data analysis and interpretation therefore needs to take into account those layers of complexity and be used to foster resilience while being careful not to bolster a group power and privilege to the detriment of another.
- However, there needs to be clear messages for policy makers, practitioners, academics and other stakeholders. We can use the emphasis on disability-disaggregated data within the UNCRPD (UN, 2006) and the SDGs (UN, 2015) as an advocacy tool to increase the visibility of persons with disability in climate discourses – in particular around resilience and capacity building,.
- Identify opportunities to instigate mechanisms whereby lessons learned from other sectors, countries and groups can be shared

APPENDIX A: COMBINATIONS OF SEARCH TERMS

("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change")
("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("resilience")
("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("adapt*" or "adaptation")
("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("adapt*" or "capacity")
("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("vulnerability")
("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("mitiga*")
("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("conserv*" or "conservation")
("disab*" or "disable*" or "disabilities") AND ("disaster" or "disaster risk" or "natural hazard*")
("disab*" or "disable*" or "disabilities") AND ("disaster" or "disaster risk" or "natural hazard*") AND ("resilience")
("disab*" or "disable*" or "disabilities") AND ("disaster" or "disaster risk" or "natural hazard*") AND ("adapt*" or "adaptation")
("disab*" or "disable*" or "disabilities") AND ("disaster" or "disaster risk" or "natural hazard*") AND ("adapt*" or "capacity")
("disab*" or "disable*" or "disabilities") AND ("disaster" or "disaster risk" or "natural hazard*") AND ("vulnerability")
("disab*" or "disable*" or "disabilities") AND ("disaster" or "disaster risk" or "natural hazard*") AND ("mitiga*")
("disab*" or "disable*" or "disabilities") AND ("disaster" or "disaster risk" or "natural hazard*") AND ("conserv*" or "conservation")

APPENDIX B: DATABASE RESULTS

Database	Search terms	Results	Relevant
1. Science Direct	(Abstract, title or keywords)		
	("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("resilience")	2	0
	("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("adapt*" or "adaptation")	7	1
	("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("adapt*" or "capacity")	7	1
	("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("vulnerability")	1	0
	("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("mitiga*")	6	1
	("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("conserv*" or "conservation")	0	0
	("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change")	63	1
	New sources matching search criteria		**1**
2. Scopus	(Abstract, title or keywords)		
	("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("resilience")	9	1
	("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("adapt*" or "adaptation")	52	3
	("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("adapt*" or "capacity")	70	4
	("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("vulnerability")	13	3
	("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("mitiga*")	18	2
	("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change") AND ("conserv*" or "conservation")	11	0
	("disab*" or "disable*" or "disabilities") AND ("climate" or "climate change")	424	4
	New sources matching search criteria		**3**
3. Web of Science			
	TITLE: (disab* or disable* or disabilities) AND TITLE: (climate change)	4	0
	TOPIC: disab* or disable* or disabilities) AND TOPIC: (climate change)	160	1
	TOPIC: (disab* or disable* or disabilities) AND TOPIC: (climate or climate change) AND TOPIC: (resilience)	11	0
	TOPIC: (disab* or disable* or disabilities) AND TOPIC: (climate or climate change) AND TOPIC: (adapt* or adaptation)	39	4
	TOPIC: (disab* or disable* or disabilities) AND TOPIC: (climate or climate change) AND TOPIC: (vulnerab*)	31	3
	TOPIC: (disab* or disable* or disabilities) AND TOPIC: (climate or climate change) AND TOPIC: (mitiga*)	19	1
	TOPIC: (disab* or disable* or disabilities) AND TOPIC: (climate or climate change) AND TOPIC: (conserv* or conservation)	4	0
	New sources matching search criteria		**0**

4. JSTOR			
	(ti:(disab* or disabilities) OR tb:(disab* or disabilities)) AND (climate change) AND resilience	31	0
		New sources matching search criteria	**0**
5. Science Direct	(Abstract, title or keywords)		
	("disab*" or "disable*" or "disabilities") AND ("disaster" or "disaster risk" or "natural hazard*")	41	1
	("disab*" or "disable*" or "disabilities") AND ("disaster" or "disaster risk" or "natural hazard*") AND ("resilience")	2	1
	("disab*" or "disable*" or "disabilities") AND ("disaster" or "disaster risk" or "natural hazard*") AND ("adapt*" or "capacity")	2	0
	("disab*" or "disable*" or "disabilities") AND ("disaster" or "disaster risk" or "natural hazard*") AND ("vulnerability")	4	0
	("disab*" or "disable*" or "disabilities") AND ("disaster" or "disaster risk" or "natural hazard*") AND ("mitiga*")	3	0
	("disab*" or "disable*" or "disabilities") AND ("disaster" or "disaster risk" or "natural hazard*") AND ("conserv*" or "conservation")	1	0
		New sources matching search criteria	**1**

APPENDIX C: WEBSITE RESULTS

Database		Search terms	Results	Relevant
Source: International online resource centre on disability and inclusion				
	1	Climate change disability	16	9
	2	Climate resilience disability	3	3
	3	Climate adaptation disability	2	2
	4	Climate vulnerability disability	8	7
	5	Climate change	55	
Prevention Web				
	1	"climate change disability " ; Documents & Publications[x] including attachments	546	51
Eldis				
	1	climate change disability	20	2
	2	climate resilience disability	2	1
	3	Climate adaptation disability	12	1
	4	Climate vulnerability disability	11	1

APPENDIX D: DISABILITY AND CLIMATE SOURCES

Summary of initial disability and climate resilience search

Published papers	
Published papers (Disability and climate resilience)	5
Published papers (Disability and humanitarian / DRR)	2
Total published papers:	**7**
Grey literature:	
Grey literature (Disability and climate resilience)	29
Grey literature (Disability and humanitarian / DRR)	17
Total grey literature:	**46**
Total relevant resources:	**53**

Science Direct			
Levy, B.S. & Patz, J. A. (2015) Climate Change, Human Rights, and Social Justice	Published		C
Sagun-Ongtangco et al (2016) Perspectives of the UST NSTP facilitators on disability and disaster risk reduction and management	Paper	Published	H/DRR
Scopus			
Gonzalez, D.S. & Alvarado, R.C. (2015) Elderly people with disabilities affected by floods in the city of Monterrey	Paper	Published	C
Harris, U.S. (2014) Communicating Climate Change in the Pacific using a bottom up approach in Pacific	Paper	Published	C
Polack, E. (2008) A Right to Adaptation: Securing the Participation of Marginalised Groups	Paper	Published	C
Eldis			
CDKN (2012) Managing Climate Extremes and Disasters in the Health Sector	Report	Grey	C
Mosberg, M (2015) Vulnerable Groups & Sustainable Climate Change Adaptation – Seminar Summary Report	Report	Grey	C
Reid, P. (2013) Climate & Environment Assessment: Business Case for Support for the Disability Rights Fund,	Report	Grey	C
Source			
Wolbring, G. (2009) 'A Culture of Neglect: Climate Discourse and Disabled People'	Paper	Published	C

IDDC 2012 Disability and sustainable devlopment	Briefing	Grey	C
CBM (2013) Disability Inclusive Disaster Risk Management. Voices from the field & good practices	Briefing	Grey	H/DRR
CBM (2014) Thematic brief – Sustainable Development Goals. Climate Change and Disaster Risk Reduction – mainstreaming disability	Briefing	Grey	H/DRR
Kett, M and Scherrer, V. (2008) 'The Impact of Climate Change on People with Disabilities	Report	Grey	C
GSDRC (2008) Helpdesk Research Report: Climate Change and Social Exclusion	Report	Grey	C
Lewis, D. & Ballard, K. (2012) Disability and Climate Change – understanding vulnerability and building resilience in a changing world	Paper	Grey	C
Prevention Web			
Action Aid (2016) Resilience Building: A Guide to Flood, Cyclone, Earthquake, Drought and Safe Schools Programming Version 1.0	Guide	Grey	C
BMZ (2013) Disaster Risk Management for All. The inclusion of children, elderly people and persons with disabilities	Policy	Grey	H/DRR
Costella, C.; Bachofen, C. & Marcondes, G. (2017) 7 thinks to know about managing climate risk through social protection	Toolkit	Grey	C
Ministry of Environment of Cambodia & UNDP Cambodia (2011) Cambodia Human Development Report 2011. Building Resilience	Report	Grey	C
CBM (2012) Technical brief for the post-2015 consultation process. Disability, sustainable development and climate change	Brief	Grey	C
2014) Empowerment and participation. Good practices from South & South-East Asia in disability inclusive disaster risk management	Report	Grey	H/DRR
Turnbull, M.; Sterrett, C.L.; Hilleboe, A. (2013) Toward Resilience. A Guide to Disaster Risk Reduction and Climate Change Adaptation	Report	Grey	C
United Nations in Vietnam (2012) Recognise the strength of women and girls in reducing disaster risks! Stories from Viet Nam	Report	Grey	H/DRR
Few et al (2015) Strategic Research into National and Local Capacity Building for DRM. Haiti Fieldwork Report	Report	Grey	H/DRR
GFDRR (2015) Inclusive Community Resilience. A Strategy for Civil Society Engagement, Community Resilience, and Gender	Strategy	Grey	C
Ghenis, A. (2016) Making migration accessible: Inclusive relocation for people with disabilities	Brief	Grey	C
NDR (2015) We need a Reality Check! How can we ensure impact at the frontline?	Report	Grey	H/DRR
IDS (2008) Climate Change Adaptation, Disaster Risk Reduction and Social Protection	Report	Grey	C
IFRC (2014) Integrating climate change and urban risks into the VCA	Report	Grey	C
IPPC (2012) Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation	Report	Grey	C
Islamic Relief (2013) Disability Inclusive Disaster Risk Reduction: Addressing the Need of One Tenth Population of Bangladesh	Report	Grey	H/DRR
Malteser International (2013) Safety. For our own life and our community. Voices of persons with disabilities	Report	Grey	H/DRR
Malteser International (2017) Reducing disaster risk through trust and tangibles	Report	Grey	C
MCCR (2015) Inclusive Community-Based Disaster Risk Reduction.	Report	Grey	H/DRR
MCCR (2015) Inclusive Framework and Toolkit for Community-Based Disaster Risk Reduction in Myanmar	Report	Grey	H/DRR
NARRI Consortium (2015) Resilience Strategy Framework and Theory of Change for NARRI Consortium 2015-2020	Strategy	Grey	C
Oxfam (2010) Integrating disaster risk reduction and adaptation into rural livelihood programming	Report	Grey	H/DRR
Flower, B. & Fortnam, M. (2015) Urbanising Disaster Risk. Vulnerability of the Urban Poor in Cambodia to Flooding and Other Hazards	Report	Grey	C
Plan (2012) Impact of Climate Change on Children in Nepal	Report	Grey	C
Plan (2015) Children: Drivers of change in Safe Schools	Report	Grey	H/DRR
Mitchell et al (2010) Climate Smart Disaster Risk Management, Strengthening Climate Resilience	Report	Grey	C
Nabi, S. (2014) Disaster Risk Management in India: Who are Most Vulnerable Yet Excluded?	Paper	Grey	C

Datta, D. & Furlong, M. (2015) Community Mobilisation and Disaster Recovery: A Case Study from South Odisha	Paper	Grey	C
Patel, A. (2016) Caring after Crisis: Meeting the Needs of the Caregivers	Paper	Grey	H/DRR
Save the Children (2015) Education Safe from Disasters. Country Briefs in Asia and the Pacific in 2015	Report	Grey	H/DRR
Stough, M. L. & Kang, D. (2015) The Sendai Framework for Disaster Risk Reduction and Persons with Disabilities	Paper	Published	H/DRR
UN HABITAT (2014) Streets as tools for urban transformation in slums: a street-led approach to citywide slum upgrading	Report	Grey	C
United Nations (2010) Local Governments and Disaster Risk Reduction	Report	Grey	H/DRR
UNICEF (2014) Protecting Children From Poverty, Disasters and Climate Risks.	Report	Grey	C
UNISDR (2015) From a Reactive to Proactive then People Centred Approach to DRR	Report	Grey	H/DRR
WaterAid (2012) Handbook on Climate Change and Disaster Resilient Water, Sanitation and Hygiene Practices	Report	Grey	C
World Bank (2008) Climate Change, Human Vulnerability, and Social Risk Management	Report	Grey	C
World Vision (2013) Cities Prepare! Reducing Vulnerabilities for the Urban Poor. Asia Pacific Disaster Report	Report	Grey	C

APPENDIX E: SUPPORTING EVIDENCE SOURCES

Summary of supporting evidence literature

Published papers:	
Published papers (Disability and humanitarian / DRR)	13
Published papers (Supporting evidence)	33
Total published papers:	**46**
Grey literature:	
Grey literature (Disability and humanitarian / DRR)	14
Grey literature (Supporting evidence)	25
Total grey literature:	**39**
Total relevant resources:	**85**

Reference	Type	Focus
Alexander, D. & Sagramola, S. (2014) Guidelines for Assisting People with Disabilities during Emergencies, Crises and Disasters	Grey	H/DRR
Alexander, D. (2013), Resilience and disaster risk reduction: an etymological journey. Natural Hazards and Earth System Sciences	Published	S
Alexander, D.; Gaillard, JC.; & Wisner, B. (2012) Disability and Disaster, in Wisner, B.; Gallard, J.C.; & Kelman, I. (eds) The Routledge Handbook of Hazards and Disaster Risk Reduction.	Published	H/DRR
Aylward, C. (2010) Intersectionality: Crossing the Theoretical and Praxis Divide	Published	S
Bahadur, A., Ibrahim, M., Tanner, T. (2010) The resilience renaissance?	Published	S
Bahadur, A., et al. (2015), The 3As: tracking resilience across BRACED	Published	S
Baldwin, M. (2014) Disaster Risk Reduction in Bokeo Province Lao PDR.	Grey	S
Bari, N., & Saha, B.G. (2012). Disability inclusive flood action plan and WASH in a Bangladeshi community	Grey	H/DRR
Béné, C., Godfrey Wood, R., Newsham, A., Davies, M. (2012). Resilience: New Utopia or New Tyranny?	Published	S
Byrne C, Harris C (2015) Climate change in an ageing world.	Grey	S
Cannon, T., Müller-Mahn, D. (2010). Vulnerability, resilience and development discourses in context of climate change	Published	S
Christie et al (2016), Private needs, public responses: vulnerable people's flood-disrupted mobility	Published	H/DRR
Clive et al (2013), Disability. In Phillips BD et al. (eds), Social Vulnerability to Disasters.	Published	S

Costello, A., Abbas, M., Allen, A., Ball, S., Bell, S., Bellamy, R., ...Kett, M. (2009). Managing the health effects of climate change	Published	S
Cutter, S., et al. (2008), A place-based model for understanding community resilience to natural disasters.	Published	S
De Bruijne, A., Boin, A., van Eeten, M. (2010). Resilience: exploring the concept and its meanings	Published	S
DFAT (2015) Development for All 2015–2020: Strategy for strengthening disability-inclusive development in Australia's aid program	Grey	S
DFID (2004) Disability KaR: Assessing Connections to DFID's Poverty Agenda	Grey	S
DFID (2011) Defining Disaster Resilience: A DFID Approach Paper.	Grey	S
DFID (2015) Disability Framework – One Year On, Leaving No One Behind	Grey	S
Dhaka Declaration (2015) The Dhaka Declaration on Disability and Disaster Risk Management	Grey	S
Edenhofer et al (2012) Climate Change, Justice and Sustainability	Published	S
Emmel N (2017) Empowerment in the relational longitudinal space of vulnerability	Published	S
FAO (2009) FAO's role in the Syria Drought Response Plan 2009	Grey	S
Folke C. (2006). Resilience: the emergence of a perspective for social-ecological systems analyses. Global Environmental Change	Published	S
Geis, D. (2000) By Design: the Disaster Resistant and Quality-of-Life Community	Published	S
Grove K (2014) Agency, affect and the immunological politics of disaster resilience	Published	S
Handicap International (2009) Mainstreaming Disability into Disaster Risk Reduction: A Training Manual	Grey	H/DRR
Handicap International (2015) Disability in humanitarian context. Views from affected people and field organisations	Grey	H/DRR
Hartog, J (2014) Disaster resilience in an ageing world: how to make policies and programmes inclusive of older people	Grey	S
Help Age (2010) A study of humanitarian financing for older people	Grey	S
Hemingway, L. and M. Priestley (2006) 'Natural hazards, human vulnerability and disabling societies: a disaster for disabled people?'	Published	S
International Federation of Red Cross and Red Crescent Societies (2015) All under one roof: disability-inclusive shelter and settlement in emergencies	Grey	S
Inclusiva (2013) Manual de gestion inclusive de emergencias: derechos humanos de las personas con discapacidad durante emergencias	Grey	H/DRR
INCRISID (2014) Inclusive Disaster Risk Management: A framework and toolkit for DRM practitioners	Grey	H/DRR
Institute of Development Studies (2014) Including people with disabilities in emergency relief efforts	Grey	H/DRR
Irshad H, Mumtaz Z, Levay A (2012), Long-term gendered consequences of permanent disabilities caused by the 2005 Pakistan earthquake	Published	H/DRR
Joseph, J. (2013). Resilience as embedded neoliberalism: a governmentality approach	Published	S
Kelman, I, & L Stough, eds (2015), Disability and Disaster: Explorations and Exchanges. New York: Palgrave Macmillan.	Published	H/DRR
Kett M, Twigg J (2007), Disability and disasters: towards an inclusive approach. World Disasters Report 2007: Focus on Discrimination	Published	H/DRR
Kett, M (2013) Risk, resilience and inclusive humanitarian action	Published	S
Khaemba, W. (2016.) 21 Years of COP	Grey	S
Khaemba, W. et al Paris Agreement Factsheet	Grey	S
Khan, N. (2011). Disabled persons database after Pakistan floods, in Forced Migration Review, Issue.38	Published	H/DRR
Klein, R., et al. (2003). Resilience to Natural Hazards: How Useful is this Concept?	Published	S
Levine, S., Pain, A., Bailey, S., Fan, L. (2012). The relevance of 'resilience'?	Published	S
Lord et al (2016) Disaster, Disability, & Difference. A Study of the Challenges Faced by Persons with Disabilities in Post-Earthquake Nepal	Grey	H/DRR

Manyena, B. (2006) The Concept of Resilience Revisited	Published	S
Manyena, B., et al. (2011) Disaster resilience: a bounce back or bounce forward ability?	Published	S
Mbeva, K., et al (2015). Intended Nationally Determined Contributions as a Means to Strengthening Africa's Engagement in International Climate Negotiations	Grey	S
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