BUILDING RESILIENCE FOR ALL

INTERSECTIONAL APPROACHES FOR REDUCING VULNERABILITY TO NATURAL HAZARDS IN NEPAL AND KENYA

Emma Lovell, John Twigg and Getrude Lung'ahi

BRACED
KNOWLEDGE MANAGER

ABOUT THE AUTHORS

Emma Lovell is a Research Fellow in the Risk and Resilience Programme at the Overseas Development Institute (ODI). Emma is an expert on disaster risk management, climate change and resilience. She leads Risk and Resilience's programme strategy on equity and social inclusion in multi-hazard contexts. She also specialises in research exploring climate, disasters and the 2030 Sustainable Development Agenda. Emma has provided technical advice on these themes to a range of governments, UN agencies, civil society organisations, foundations and multilateral and regional entities. Before ODI, Emma worked in Bangkok, Thailand, for the United Nations Economic and Social Commission for Asia and the Pacific and the Asian Disaster Preparedness Center.

John Twigg is an independent researcher, Honorary Professor at University College London and former Principal Research Fellow at ODI. His research focuses on disaster risk reduction and resilience, crossing the disciplinary boundaries between engineering, planning, geography and sociology. Specific research interests include community resilience, urban resilience, post-disaster recovery, equity and inclusion, disaster institutions, vulnerability and risk assessment methods, and disability and disasters. The application of academic research to improve operational practice is a particular interest. John is the author of more than 100 publications, including *Characteristics of a disaster-resilient community* and the good practice review *Disaster risk reduction;* he is also an editor of the leading international journal *Disasters.*

Getrude Lung'ahi has more than 10 years' experience in communications and knowledge management drawn from various civil society organisations and government institutions. She has led programmes on communications and knowledge management in climate change, and governance and women's rights. Getrude also works as a Knowledge Engagement Leader for the BRACED programme. Her interests focus on the development of local communities in the context of climate change with a governance and gender perspective. She recently co-published a paper on *Gender based violence in Nairobi slums: Women survivors' access to justice through SMS*. Getrude conducted her Masters in Communication and Media Studies with the University of Nairobi.

Contents

List of tables

List of figures and maps

List of boxes

Acronyms

ACAP	Accessibility, Communication, Attitude and Participation
ADCAP	Age and Disability Capacity-Building Programme
AIDS	Acquired Immunodeficiency Syndrome
APF	Armed Police Force (Nepal)
ASALs	arid and semi-arid lands
BRACED	Building Resilience and Adaptation to Climate Extremes and Disasters
CBDRR	Community-based disaster risk reduction
CBS	Central Bureau of Statistics (Nepal)
CCA	climate change adaptation
CIDP	County Integrated Development Plan (Kenya)
DAO	District Administrative Office (Nepal)
DEOC	District Emergency Operations Centre (Nepal)
DDMC	District Disaster Management Committee (Nepal)
DHM	Department of Hydrology and Meteorology (Nepal)
DIMS	Disaster Information Management System (Nepal)
DRM	disaster risk management
DRR	disaster risk reduction
DRRM	disaster risk reduction and management
EIU	Economist Intelligence Unit
EWS	early warning system
FGD	focus group discussion
GBV	gender-based violence
GDP	gross domestic product
GESI	gender and social inclusion
GOK	Government of Kenya
GoN	Government of Nepal
GRID	Group-based Inequality Database
HDI	Human Development Index
HFA	Hyogo Framework for Action
HIV	Human Immunodeficiency Virus
HSNP	Hunger Safety Net Programme (Kenya)
ICCO	Inter-Church Organisation for Development Cooperation
IDP	internally displaced person
INGO	international NGO
INSARAG	International Search and Rescue Advisory Group
KII	key informant interview
KNBS	Kenya National Bureau of Statistics
KNPDRR	Kenya National Platform on Disaster Risk Reduction
LAPA	Local Adaptation Plan of Action

LftW	Light for the World
LGBTQIA	lesbian, gay, bisexual, transgender, queer or questioning, intersex and asexual or allied
M&E	monitoring and evaluation
MoALF	Ministry of Agriculture, Livestock and Fisheries (Kenya)
MEF	Ministry of the Environment and Forestry (Kenya)
MoFE	Ministry of Forests and Environment (Nepal)
MoHA	Ministry of Home Affairs (Nepal)
MoFAGA	Ministry of Federal Affairs and General Administration (Nepal)
MOSSP	Ministry of State for Special Programmes (Kenya)
MSB	Swedish Civil Contingencies Agency
MWCSW	Ministry of Women, Children and Social Welfare (Nepal)
NCCAP	National Climate Change Action Plan (Kenya)
NCCRS	National Climate Change Response Strategy (Kenya)
NDMA	National Drought Management Authority (Kenya)
NEOC	National Emergency Operation Center (Nepal)
NGEC	National Gender and Equality Commission (Kenya)
NGO	non-governmental organisation
NRCS	Nepal Red Cross Society
ODI	Overseas Development Institute
SAARC	South Asian Association for Regional Cooperation
SDC	Swiss Agency for Development Cooperation
SDG	Sustainable Development Goal
T21	Threshold 21 Model (Kenya)
TWUC	Tharu Women Upliftment Centre (Nepal)
UN	United Nations
UNAIDS	Joint UN Programme on HIV and AIDS
UN CDP	UN Committee for Development Policy
UNDP	UN Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	UN Population Fund
UNIFEM	UN Development Fund for Women
UNISDR	United Nations Office for Disaster Risk Reduction
VCA	Vulnerability and Capacity Assessment
VDC	Village Development Committee (Nepal)
WDO	Women's Development Office (Nepal)
WOREC	Women's Rehabilitation Centre (Nepal)
WRI	Women's Resilience Index

EXECUTIVE SUMMARY

Image: ILO/
Pradip Shakya

This research is part of a package from the Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED) programme, looking at the application of intersectional approaches in vulnerability reduction and resilience-building.

We need to understand how different factors intersect to create exclusion, inequality and vulnerabilities in multi-hazard contexts (Chaplin et al., 2019). Many factors, including age, sex, socioeconomic background, ethnicity and health, come into play during a disaster. Marginalised and disadvantaged groups tend to be particularly vulnerable to natural hazards, and disasters tend to exacerbate vulnerabilities and social inequalities (Lovell and Le Masson, 2014). Intersectional analysis considers categories of social difference and disadvantage, how they relate to one another and the effect this has on human wellbeing, relationships and inequality (Chaplin et al., 2019). To date, there is no single approach or defined set of methods that represents best practice for seeking intersectional understandings of vulnerability and resilience relating to hazards, climate change and climate variability.

This research project sought to overcome this gap by field-testing a practical operational toolkit to investigate intersecting inequalities in hazardous contexts. The toolkit builds on an earlier version developed by the Overseas Development Institute (ODI) and ActionAid to identify differences between women and men's resilience to natural hazards and climate change (Le Masson and Lovell, 2015).

It uses three research tools: a quantitative household-level survey to collect data grouped under four resilience components (economic, social, infrastructure and institutional), and focus group discussions (FGDs) in communities and semi-structured key informant interviews (KIIs) at local and national levels, which generated qualitative data. For this project, the toolkit was adapted to include not only gender considerations but also other inequality markers and their interaction (i.e. intersectionality).

Two case studies were carried out, in Nepal and Kenya, to measure people's resilience in relation to their sex and one other intersecting factor that might put them at a disadvantage in society. In Nepal, the research focused on the experiences of women and men in different ethnic and caste groups who were exposed to flooding. In Kenya, it studied women and men with and without political representation, from majority and minority clans (and hence differing priority status in terms of development and resource allocation from government and other actors). The research in Nepal was carried out in the socially and ethnically diverse Bardiya district, where flooding is a major hazard. In Kenya, the research took place in Wajir county, which suffers from recurrent dry spells and prolonged drought, erratic rainfall patterns, heat stress, shifts in seasons, moisture stress and occasional floods. ODI worked with two BRACED partners: in Nepal, the Anukulan project (in collaboration with iDE Nepal); and in Kenya, the PROGRESS project (in collaboration with Mercy Corps and ENDA). The country partners trained data collectors to carry out the survey in the appropriate language at the household level.

The survey data (120 informants in each country) was processed to generate resilience index scores across the four resilience components. Statistical analysis was carried out to test differences in the resilience scores relating to sex and social group. Qualitative data was analysed to understand local perspectives and experiences of vulnerability, risk and disaster management, and triangulated with the views and experiences of federal government ministries and non-governmental organisations (NGOs).

In Nepal, the quantitative study shows a statistically significant difference between women and men within both disadvantaged and other groups, meaning that men are more resilient to natural hazards and climate change than women. In particular, men have better access to, and control over, financial resources, as well as a higher capacity to earn cash daily. Women appear to be less able to cope, and have poorer access to information from official sources and to phones and radios to receive early warning messages. They also reported poor access to leadership roles and opportunities to participate in community decisions and training programmes. The differences between women and men are even larger in the disadvantaged social group.

Apart from this, however, there appears to be very little difference between the social groups in Nepal. Qualitative data revealed a range of personal, situational and social factors affecting vulnerability, particularly poverty and assigned gender roles, as well as settlement patterns, limited livelihood options and migration of household members to seek employment. There was some recognition of discriminatory practices, but there was more emphasis on poverty than on social

tensions between ethnic and caste groups or power relations in society. The consequences of Nepal's new federal governance structure are still being worked through at local level. There is a gradual shift in focus from response to disaster risk management (DRM), although local capacities are often limited. There have been significant improvements in EWS, and more effort is going into building household and community capacities to cope with hazards.

In Kenya, the quantitative survey findings are more puzzling. The resilience scores (overall and across the four resilience components) do not demonstrate statistically significant differences in average scores between women and men and between the social groups. Men have a slightly higher score regarding social resilience and food security, as well as in terms of access to information through newspapers. Nevertheless, there was common agreement across the KIIs and FGDs that gender inequalities are a major constraint to women: they have less access to and control of natural resources; they have less opportunity to earn an income, access education or training and participate in decision-making processes; and they do not enjoy equal rights to inheritance of assets. Gender-based violence was also identified as an important issue. As in Nepal, migration for work is a common response to poverty.

Kenya has also recently decentralised government and strengthened DRM structures and is beginning to shift emphasis from response to preparedness and risk reduction, and to mainstream disaster risk reduction (DRR) with development. However, DRM remains largely focused on reactive, short-term emergency or relief responses, and there are challenges relating to capacity, coordination and lack of resources for policies and programmes that aim to build resilience. Current policy action related to climate change adaptation (CCA) and DRM is still mainly at the national level: less progress has been made towards building response capacity at sub-national levels where there is more limited funding and institutional capacity.

As noted above, many different factors intersect to create exclusion, inequality and vulnerabilities: these are difficult to disentangle (Chaplin et al., 2019). The quantitative and qualitative data collected through this research reveals some aspects of resilience and intersecting inequalities, although some of the quantitative research findings are difficult to explain, and the qualitative evidence suggested inequality was more significant than the numerical data indicated. Further research would benefit from using a larger sample or focusing on more closely defined categories of disadvantage. Adding too many intersecting factors is likely to cloud research results.
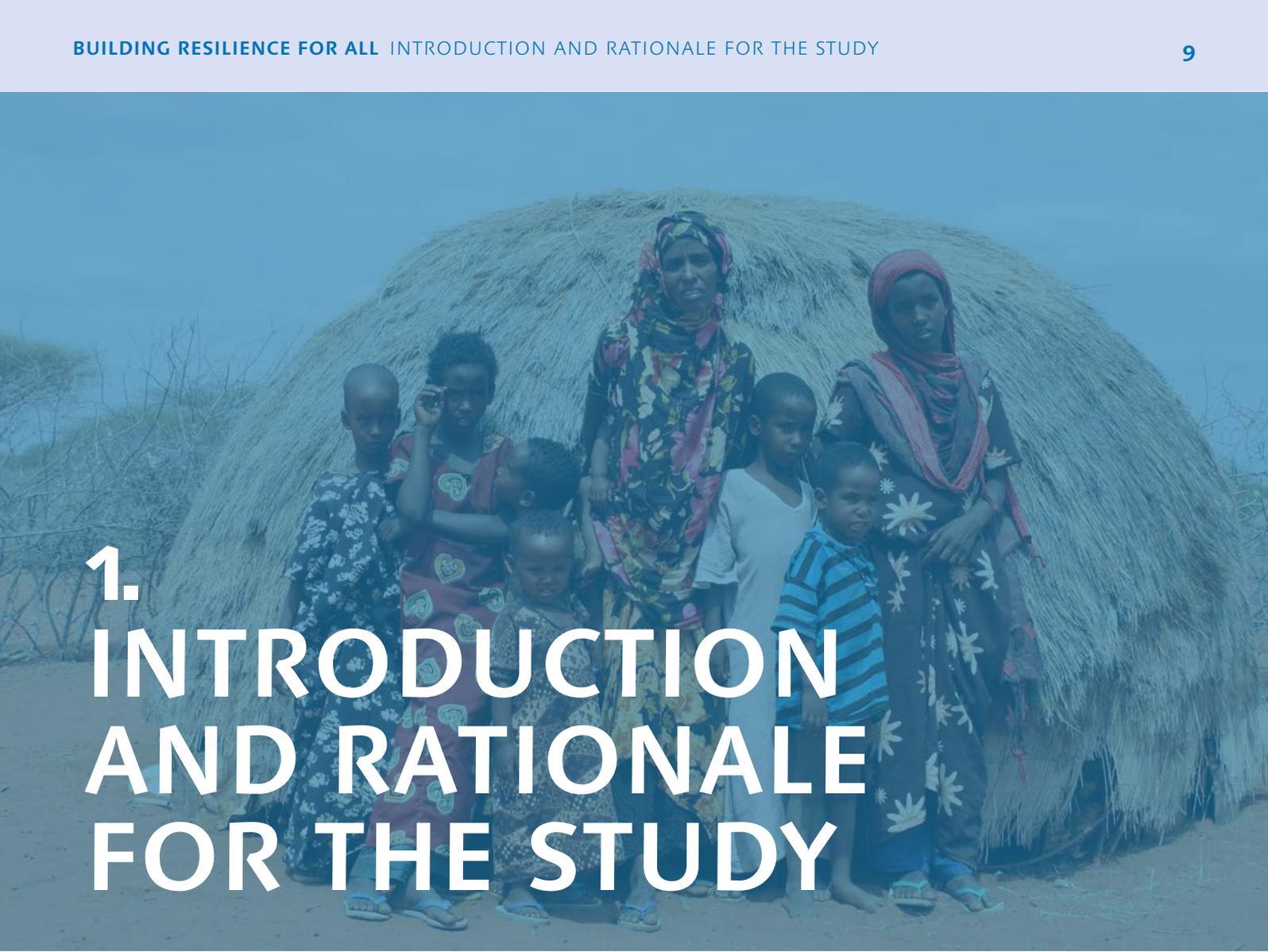
1.
INTRODUCTION AND RATIONALE FOR THE STUDY

Image: Oxfam
East Africa

1.1. Background

Marginalised and disadvantaged groups tend to be particularly vulnerable to natural hazards: they are more likely to live in exposed and dangerous locations, in insecure or unsafe housing; and their recovery is hindered by lack of material and economic resources as well as access to decision-makers. Many factors, including age, sex, socioeconomic background, ethnicity and health, come into play during a disaster, and disasters also tend to exacerbate vulnerabilities and social inequalities (Wisner et al., 2004; Lovell and Le Masson, 2014; Barbelet et al., 2018).

Intersectional approaches recognise that 'people have different identities, needs, priorities and capacities which are not static, and will shift and change over time – affecting their ability to prepare for, cope with and respond to natural hazards and climate variability' (Chaplin et al., 2019: 1).

In order to help promote inclusive and relevant policies and practice that reduce vulnerability and build resilience to climate change and natural hazards, there is a need to understand how different factors intersect to create exclusion, inequality and vulnerabilities over a person's life course, within a multi-hazard context (Chaplin et al., 2019). A wide range of social, economic, cultural,

political and environmental factors can affect the way people experience natural hazard-related disasters, including those influenced by climate change. Intersectional analysis recognises the interaction between categories of social difference (e.g. gender, race, ethnicity, class, age, disability, religion, education and sexuality) and inequality, and how these affect individuals, social practices, cultures, institutions and power relationships. People have 'different identities, needs, priorities and capacities, which are not static and will shift and change over time' (Chaplin et al., 2019).

Risk patterns are influenced by variety of socioeconomic, cultural, political and environmental changes. Several factors interact to result in greater exposure of people, assets and livelihoods to natural hazards. These include demographic changes, population movements, urbanisation, climate change and climate variability. People who are socially, economically, culturally or politically disadvantaged are often the most vulnerable to the effects of environmental shocks and stresses, owing to constraints on their capacity to prepare for, cope with, respond to and recover from them (Lovell and Le Masson, 2014; Diwakar et al., 2019).

Marginalised groups include children and young people, women, older persons, persons with disabilities, migrants, stateless or undocumented persons, internally displaced persons (IDPs), ethnic and caste groups, indigenous peoples, LGBTQIA,[1] people living with HIV/AIDS and the most impoverished, although this list is not exhaustive. These groups are often excluded from accessing services and systems central to their wellbeing and development outcomes, and from participating in decisions that affect their lives (Diwakar et al., 2019).

Moreover, monitoring and evaluation (M&E) processes often do not systematically include data disaggregated by sex, age, ethnicity, disability and other socioeconomic factors, which means policies and systems are often not informed by the local context and do not respond to the needs, vulnerabilities and capacities of these groups (Chaplin et al., 2019). It also means they often ignore different social dynamics and power relations. Similarly, much research tends to focus on the short-term, direct impacts of natural hazard-related disasters on people, as opposed to considering the indirect and longer-term impacts on their wellbeing and development outcomes, which may contribute to household poverty and prevent escapes from poverty from being sustained over time (Diwakar and Shepherd, 2018; Diwakar et al., 2019). These impacts and outcomes are again not static, and they will shift and change during a person's life course (Chaplin et al., 2019; Diwakar et al., 2019).

There is no single approach or defined set of methods that represent best practice for seeking intersectional understandings of vulnerability and resilience relating to natural hazards, climate change and climate variability (Chaplin et al., 2019). Developing a tool that is both sensitive enough

---

1   Lesbian, gay, bisexual, transgender, queer or questioning, intersex and asexual or allied.

to measure specificities while being practical enough to be used in the field is still a challenge (Thompson-Hall et al., 2016; Smith et al., 2017), and, while vulnerability and capacity assessments could potentially do this, it is unclear if this happens in practice.

The aim of this study is to better understand different factors that influence people's vulnerabilities and resilience to natural hazards, climate change and climate variability through a gender lens, while also taking a perspective that is more intersectional. The work aims to inform institutional policy and operational practice around intersectional approaches to vulnerability reduction and resilience-building. This paper is part of a package of BRACED research looking at the application of intersectional approaches in vulnerability reduction and resilience-building.[2] The project aimed to explore vulnerability and resilience beyond the women/men binary, testing an innovative methodology to compare people's resilience by disaggregating different variables.

ODI in collaboration with Anukulan (led by iDE) in Nepal and PROGRESS (led by Mercy Corps and ENDA) in Kenya have developed and field-tested a practical operational toolkit to investigate intersecting inequalities in hazardous contexts. We have carried out two case studies using a methodology and approach for measuring resilience in relation to differences between women and men and another intersecting factor in Nepal and Kenya.

- **In Nepal** the research focused on two intersecting vulnerability factors and aimed to understand the different experiences of women and men within different ethnicities/castes. This includes women and men from disadvantaged groups (the ethnicity/caste groups that belong to the categories of Dalits, disadvantaged Janajatis and disadvantaged Madhesis) and women and men from other groups (all caste/ethnic groups that do not fall under the disadvantaged groups). The fieldwork took place in Bardiya district in Nepal, which is exposed to flooding.

- **In Kenya** the research focused on two intersecting vulnerability factors and aimed to understand the different experiences of women and men with and without political representation, in the context of one recurrent and widespread hazard (drought) in Wajir county. Political representation[3] is mainly of majority clans (including women and men), which have an advantage over minority clans (including women and men who are not

---

2 The research included a workshop on intersectionality, vulnerability and resilience organised by ODI in June 2018, at which participants from operational agencies and research institutions shared their experiences and ideas through informal discussions; and a scoping study on 'Intersectional approaches to vulnerability reduction and resilience-building', which presents evidence gathered through a review of academic and grey literature around intersecting inequality factors and intersectional approaches to vulnerability reduction and resilience-building (Chaplin et al., 2019).

3 Political representation comes through an elected representative in a legislative body on behalf of the electorate in her or his constituency/the action of speaking or acting on behalf of citizens at both local and national levels. Examples of political position include members of the county assembly, women representatives, members of the national assembly, senators and governors.

politically represented and cannot access resources) and receive priority in terms of resource allocation and support from their leaders, government, well-wishers and other humanitarian actors. Because they are politically represented, their voices, opinions and perspectives are considered in public policy-making processes. On the other hand, minority clans are mostly not politically represented and are disadvantaged in terms of access to resources, opportunities and decision-making processes. Their priorities are not addressed since they do not have a representative who can champion their needs.[4]

This paper presents and discusses the findings from the two studies and what this means for intersectional approaches in vulnerability reduction and resilience-building.

1.2. Reducing inequality and building resilience in the 2030 Agenda for Sustainable Development

The Sustainable Development Goals (SDGs) promote the need to eradicate poverty 'in all its forms and dimensions', leaving no one behind and realising the human rights of all. While all the goals contribute to sustainable development, a number speak specifically to the inclusion agenda, including Goals 1, 2, 3, 4, 5, 6, 8, 10 and 16 (UN, 2015). Achieving inclusion requires addressing the discrimination, marginalisation and exploitation disadvantaged groups experience, both in disasters and at other times. This is important for the 'leave no one behind' agenda, a commitment central to the SDGs, which aim to end extreme poverty (SDG 1), reduce inequalities and address discriminatory behaviour (SDG 10). The Sendai Framework for Disaster Risk Reduction (2015–2030) notes the need for inclusive, accessible and non-discriminatory participation: it seeks to reduce disaster risk through the implementation of inclusive policies and measures to reduce hazard exposure, increase preparedness for response and recovery and strengthen resilience (UNISDR, 2015). The Sendai Framework recognises that DRR:

> … requires an all-of-society engagement and partnership. It also requires empowerment and inclusive, accessible and non-discriminatory participation, paying special attention to people disproportionately affected by disasters, especially the poorest. A gender, age, disability and cultural perspective should be integrated in all policies and practices, and women and youth leadership should be promoted (UNISDR, 2015: 13).

---

4   Kenyan politics are ethnicity-based, with citizens voting along tribal lines. Majority clans are always politically represented because they have the numbers to elect their leaders.

Similarly, the Paris Climate Agreement acknowledges:

> *… climate change is a common concern of humankind. Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, 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).

In the humanitarian sector, the drive for inclusion is based on a range of principles, including the impartiality of humanitarian action, support to those most vulnerable or most in need, rights-based approaches, 'Do No Harm' and commitments to gender-sensitive programming and protection (Barbelet, 2018). However, national and international policy and advocacy instruments have tended to look at issues of marginalisation and discrimination in isolation, focusing on specific groups.

The Paris Climate Agreement, SDGs and Sendai Framework recognise the need for participatory approaches that consider different social, economic, political and environmental contexts to help promote 'relevant socioeconomic and environmental policies and actions' (UNFCCC, 2015: 9). Nevertheless, continued pressure is required to ensure follow-through and adequate resourcing, and, without more coherence between those agencies working with different groups and within different frameworks, there is a risk that marginalised groups will continue to be left behind. Holistic, cross-sectoral approaches are required, informed by awareness of the interconnectedness and intersectionality of issues and groups.

1.3. Intersectionality in the context of disasters and climate change

This section includes extracts from and draws on the BRACED scoping study *Intersectional approaches to vulnerability reduction and resilience-building* (see Chaplin et al., 2019).

Intersectionality can be defined as:

> *… the interaction between gender, race, and other categories of social difference [e.g. ethnicity, caste, class, age, disability, religion, education, sexuality and relationship status] in individual lives, social practices, institutional arrangements, and cultural ideologies and the outcomes of these interactions in terms of power (Davis, 2008: 68).*

It provides insights into the ways in which different factors or identities, such as gender, age, disability and ethnicity, interact, thereby providing a better 'understanding of people's needs, interests, capacities and experiences' (Chaplin et al., 2019). This in turn helps ensure policies and programmes are targeted more effectively.

Intersectional approaches to vulnerability reduction and resilience-building recognise that vulnerability is socially created, reflecting power relationships, cultural attitudes and resource distribution in society. Nevertheless, vulnerable groups are not homogenous or static, and they are constantly undergoing change. Intersectional analysis takes 'historical, social, cultural and political contexts into account', as well as power relationships in societies, recognising that 'different identities, conditions, contexts and forms of oppression, discrimination and marginalisation intersect' or overlap (Chaplin et al., 2019). For instance, older people's ability to evacuate in response to a hazard early warning may be restricted by intersections with poverty, disability, poor health or social isolation.

Gender analysis is standard in resilience planning and programming – everyone has a gender identity and sex – but at present there is a lack of methodologies and tools for identifying and understanding the intersection between different inequality factors (Smith et al., 2017). Most development actors still target their programmes at supporting particular social groups, in particular women, children and persons with disabilities (Bond, 2018 in Chaplin et al., 2019). 'There is also a tension between approaches that subscribe to the ethos of "inclusion for all", such as the ACAP framework (van Ek and Schot, 2017) and the need to target specific disadvantaged groups, particularly those facing intersecting inequalities (Lenhardt and Samman, 2015)' (Chaplin et al., 2019: 17).

Gender analysis relating to vulnerability and adaptation often focuses on a very basic, binary women/men difference, and may overlook the intersection of gender with other identities (e.g. Djoudi et al., 2016). Thorough, systematic data collection is central to understanding the complex vulnerability of communities affected by natural hazards and environmental change (MSB, 2013). Inadequate data can hinder the identification of vulnerable and marginalised groups and their inclusion in programming (Barbelet et al., 2018). Disaggregating data (e.g. by sex, age and disability) is particularly important in enabling the identification of marginalised populations with specific needs and capacities and helping establish the scope of the problem by making marginalised groups more visible to policy-makers (Mission East et al., 2017; Smith et al., 2017; Sheppard et al., 2018; Stewart and Lander, 2018 and Chaplin et al., 2019).

However, 'disaggregation does not often progress beyond the gathering of sex-disaggregated data' (Thompson-Hall et al., 2016 in Chaplin et al., 2019). Even national census data is 'generally not disaggregated by gender, age, or type of disability, resulting in a lack of reliable statistics and data' (Plan International, 2017: 9). That being said, Save the Children's Group-based Inequality Database (GRID) has taken an intersectional approach to develop 'a dataset of disaggregated data on child outcomes for nearly 80 developing countries' (Save the Children, 2018 in Chaplin et al., 2019).

Policy-makers and practitioners are beginning to pay attention to intersectionality and adopt intersectional approaches in their work (Chaplin et al. 2019). Some guidance on this is available. Smith et al. (2017) 'outline questions that could be used in investigating intersectionality. These should draw out existing social divisions and inequalities; how these reinforce (or otherwise influence) existing

social relations; what programmes and policies are in place to bolster individual and community resilience; and what, if any, examples there are of the resilience of vulnerable and marginalised people being enhanced by these interventions' (Chaplin et al., 2019). Mission East, Light for the World (LftW) and the Inter-Church Organisation for Development Cooperation (ICCO) have developed an inclusion guide for practitioners, focusing on gender and disability (van Ek and Schot, 2017). As part of this initiative, Mission East Nepal's ACAP framework is designed to ensure agencies take a holistic view of marginalisation and exclusion, to ensure nobody is excluded from development actions (ibid., 2017).

Meanwhile, the Inter-Agency Standing Committee has launched a gender with age marker.[5] The Age and Disability Capacity Programme (ADCAP) guide to embedding inclusion of older persons and persons with disabilities in humanitarian policy and practice calls for an intersectional approach and illustrates how some agencies have attempted to introduce this (ADCAP, 2018a 2018b in Chaplin et al., 2019). HelpAge International has developed an analytical framework for use in policy and operationally, which adds a life course perspective to provide a better understanding of the intersection of gender and ageing (Stewart and Lander, 2018).

These different tools are still new and have not been tried and tested in a wide range of contexts. There is no standard method to conduct an intersectional analysis of resilience. For this reason, ODI and its partners decided to test a modified version of its toolkit for assessing gender differences in resilience (see Section 2).

---

[5]   https://interagencystandingcommittee.org/other/content/iasc-gender-age-marker-gam-2018

2. RESEARCH METHODOLOGY

Intersectional approaches have rarely been applied to risk and vulnerability analysis, and there is no single method for conducting an intersectional analysis of resilience. This research is testing a new method, based on an existing toolkit, which was developed by ODI in collaboration with ActionAid (Le Masson and Lovell, 2015).[6] It uses a gender-sensitive methodology for practitioners to measure (score) and compare women and men's resilience to climate and natural hazards at local levels. The gender-sensitive toolkit builds on the South Asia Women's Resilience Index (WRI), which examines the role of women in preparing for and recovering from disasters, focusing on the national level. The WRI was developed in 2014 by ActionAid in partnership with the Economist Intelligence Unit (EIU).

The gender-sensitive toolkit enables programmes and partners to identify differences between women and men in terms of resources they can mobilise to better cope with natural hazards and the barriers they face in adapting to climate change; to identify areas that need strengthening; and to advocate for

[6]   This toolkit was commissioned by ActionAid Australia and was developed by ODI, in collaboration with ActionAid Bangladesh and ActionAid Pakistan, through the support of the Australian government.

positive change to build community resilience. The toolkit[7] uses three research tools to collect the data:

1. a household-level survey to collect data under four components (economic, social, infrastructure and institutional – see Figure 1) with a set of 36 indicators to assess different aspects of people's resilience at the local level. This results in two resilience scores: 'one for women and one for men, which can then be compared to demonstrate any inequalities that exist' (Le Masson and Lovell, 2015: 8)

2. focus group discussions (FGDs) at the local level

3. semi-structured key informant interviews (KIIs) at the local and national level.

Figure 1. Four components used to assess different aspects of people's resilience at the local level

ECONOMIC	SOCIAL	INFRASTRUCTURE	INSTITUTIONAL
Access and control of economic resources makes it easier for people to prepare for and respond to disasters. This category considers the overall economic strength of households, the availability of personal finance and opportunities to access financial instruments. Key indicators in this category also measure people's access to, and control over, natural resources and livestock to support their livelihood options, as well as their engagement in small and medium-sized business enterprises.	Human resources (e.g. people's health status and educational attainment) and social resources (e.g. being able to rely on support from household members or neighbours and belonging to community or religious groups) are critical to the resilience of people in terms of being able to prepare for, cope with and respond to disasters. Key indicators in this category also assess how people's resilience is influenced by migration patterns, the prevalence of gender-based violence and the level of personal disaster preparedness.	Reliable infrastructure ensures communities can reduce the initial effects of a disaster, minimise structural damage and allow for evacuation. Thereafter, good infrastructure enables faster recovery. Key indicators in this category measure the extensiveness and reliability of infrastructure for people to access basic services (i.e. safe locations, housing, clean water and sanitation, transport, power and communications technology); and whether there is a functioning early warning system (EWS).	This category examines the extent to which people are participating in and leading decision-making processes and whether their perspectives are accounted for by public institutions. Key indicators in this category also measure how effective the government is in the implementation of disaster management plans and activities, and whether people trust local government and the media to reflect and respond to their needs.

Source: Le Masson and Lovell (2015).

---

7   The full research methodology is available online here.

2.1. Measuring intersecting inequality factors at the household level

2.1.1. Survey

For this experimental research, we adapted the ODI–ActionAid gender-sensitive toolkit to include other inequality markers and their interaction (i.e. intersectionality). In order to test this new methodology, we analysed the results from four groups (based on sex: women and men; and on social group: disadvantaged and other (representing an additional variable relating to an intersecting inequality factor)), in order to assess their resilience to natural hazards and climate change (based on the toolkit's four components of resilience: economic, social, infrastructure and institutional: see Figure 1).

In each country setting, the data collectors ensured an equal number of women and men were selected for the survey, with half of each group coming from a disadvantaged group and the other half from another group – resulting in four different groups. In order to enhance research rigour, we increased the number of surveys undertaken to 120 in total (per country), so we could interview 60 men and 60 women. Per sex, two sub-groups of 30 people each representing the identified intersecting inequality factor were selected (see Figure 2 for a breakdown). While a larger sample would have helped provide greater statistical significance of the findings from the four groups, the time and scope of the project meant this was not possible.

The main objective of the adapted tool is to compare the differences between women and men, from different social groups (based on disadvantaged or other groups) in terms of their resilience to climate and natural hazards in Nepal and Kenya, respectively. When adapting the tool, two hypotheses were made:

- Differences in the resilience score are driven by social group and/or by sex.

- Differences in the resilience score are not driven by a community's location – sites with similar levels of hazard exposure were selected.

Figure 2. Breakdown of intersecting inequality factors

60 women
- 30 from disadvantaged group
- 30 from other groups

60 men
- 30 from disadvantaged group
- 30 from other groups
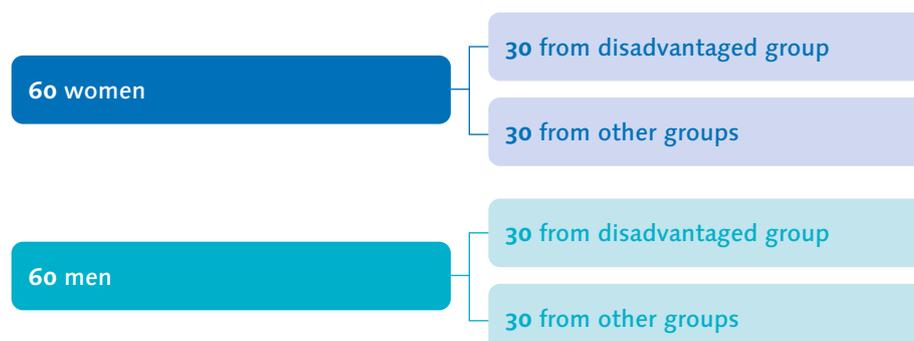
The ODI-ActionAid gender-sensitive toolkit was designed following fieldwork in Bangladesh and Pakistan. For this study, we contextualised the survey variables so they were appropriate for the economic, social, infrastructure and institutional contexts of Nepal and Kenya. We did this with our two BRACED partners: in Nepal, the Anukulan project (in collaboration with iDE Nepal); and in Kenya, the PROGRESS project (in collaboration with Mercy Corps and ENDA). National data collectors carried out the survey in the appropriate language at the household level.

ODI provided the data collectors with 1.5 days training on using the survey/ questionnaire section of the tool, which included ensuring that all the questions, variables and indicators were relevant for the given context and that we had the same understanding of the indicators, research method and data entry process.

In both contexts, our BRACED partners were in touch with the ward administrator/chief/head of the area where the research was being carried out, to explain the purpose and rationale for the study and the fact that it was independent research. This process ensured we received their sign-off to carry out the research in the area, and their assistance with sampling to ensure we were targeting households from the different social groups.

Female data collectors carried out the survey with women and male data collectors carried out the survey with men; interviews were conducted separately to prevent men influencing women's views or trying to speak on their behalf, and vice versa. All respondents were over 18 years old, but where possible participants were selected from different age groups, with different livelihood sources. The data collectors conducted a one-day trial, carrying out the survey with a number of participants, which provided valuable feedback that informed the revision and improvement of some of the questions and proved a useful guide for conducting the survey. The survey was also translated into the local language of the data collectors and villagers in Nepal, and for key words in Kenya, to ensure consistency and confidence in the use of the survey, and that those surveyed understood the questions.

2.1.2. Sampling in the two case study areas

This section highlights the area of study, the different variables researched and the sampling for household survey respondents.

BARDIYA DISTRICT, NEPAL

The research in Nepal was carried out in Bardiya district in Province 5, in relation to flooding. It looked at women and men from groups that are disadvantaged (socially discriminated against) owing to a combination of caste (the caste system cuts across different social groups) and ethnicity: disadvantaged Janajatis (groups previously known as hill tribes, including the Tharu indigenous ethnic group and similar groups from the Tarai), people living in the Tarai (Madhesis) and Dalits (the lowest group in the caste system) (Gellner, 2007). It also looked at people from other social groups (all caste/ethnic groups that do not fall under the disadvantaged groups).

The survey was carried out in one site in Ward 2 and one site in Ward 4 from Barbardiya municipality – using purposive sampling to obtain equal sizes of disadvantaged and other groups, and women and men from each site. Four data collectors (who had been trained by the project in the survey methodology) visited and administered the survey questions to 60 people in each site (i.e. 120 surveyed in total). Selection of individual interviewees within these categories was random; local community leaders identified locations where both disadvantaged and other groups lived (mixed communities are common in the district) and they helped provide a list of people from the different groups, based on the surnames of the people in the community. Surnames were used to identify the social group affiliation of individual interviewees, although it was recognised that, as other research has shown, it can be difficult to determine caste status, and in the case of inter-caste marriages women may assume the surnames of their spouses or use their own birth surnames (Penta et al., 2016; Nepali et al., 2018). To identify potential survey sites and obtain local support for the study, the team made preliminary visits and held informal public meetings in Ward 2 and Ward 4 of Barbardiya municipality with the ward chairs, and 70 inhabitants of the two wards.

WAJIR COUNTY, KENYA

The research in Kenya looked at two intersecting vulnerability factors and the different experiences of women and men with and without political representation, in the context of one recurrent and widespread hazard (drought) in Wajir county. The surveys were carried out in six sites in six wards from three sub-counties of Wajir: two sites in Wajir South (Habaswein, Machesa), two sites in Wajir West (Hadado and Garse Qoftu) and two sites in Wajir North (Bute and Batalu); for every sub-county, one of the wards has political representation and the other does not (see Table 1).[8] We targeted the most vulnerable groups affected by drought according to the county coordinator of the National Drought Management Authority (NDMA) based on monthly reports and analysis, and BRACED partner Mercy Corps Kenya based on its work experience with Ward Adaptation Committees in Wajir.

Wards were mapped and identified based on political representation at any level – local or national – and without political representation, and selection was carried out based on the two groups with reference to accessibility and security concerns (secure wards were identified since Wajir is prone to insecurity). The three sub-counties were selected because they represent those who are politically represented or not. Local chiefs and village instructors provided directions to get to the different villages and provided security in case of any hostility among residents.[9] Once in the villages, the local chief and village

8   Settlement in Wajir in rural areas is clan-based or political representation-based. Families of the same clan live together. Politicians also create new settlements for their clan in areas close to resources like boreholes and pasture lands.

9   Wajir is a region prone to insecurities and inter-ethnic conflicts. During the time of the survey, some of the regions were insecure because of ongoing clan conflict resulting from cattle rustling and resources.

instructors did not visit individual homesteads, but they remained in the village on call in case of any tensions.

Data was collected using purposive sampling to obtain equal sizes of disadvantaged and other groups (based on clans that were politically represented or not at any level), and women and men from each of the sites, but selection of individual interviewees within these categories was randomised.

Table 1. Research sites and presence of political representation

Sub-county	Ward with political representation	Ward without political representation
Wajir South	Habaswein	Machesa
Wajir North	Bute	Batalu
Wajir West	Hadado	Garse Qoftu

In Kenya, clans tend to segregate into different geographical areas. Hence, political representation varies at the aggregate ward level rather than at the household/individual level. The differences between the disadvantaged social groups (with no political representation) and the other social groups (with political representation) are driven largely by geographical differences. Wards with no political representation have poor access to hard infrastructure, such as electricity and water sources (boreholes/water kiosks).

Political representation is mainly among majority clans (including women and men), which have an advantage over minority clans (including women and men who are not politically represented and cannot access resources) and receive priority in terms of resource allocation and support from their leaders, government, well-wishers and other humanitarian actors. Because they are politically represented, their voices, opinions and perspectives are considered in public policy-making processes. Minority clans are mainly not politically represented and are disadvantaged in terms of access to resources, opportunities and decision-making processes. Their priorities and needs are not addressed since they do not have a representative who can champion their needs.

2.2. Exploring the governance of intersectional approaches to vulnerability reduction and resilience building

While the survey helped us understand the experiences of women and men from different groups in relation to natural hazards and climate change at the individual and household level, the research also aimed to understand the governance of natural hazards and climate change through KIIs and FGDs with key groups, including those responsible for helping manage these events. Taking a mixed-methods approach was useful to triangulate data from the survey and access views from key stakeholders on disaster risk management (DRM) and climate change

adaptation (CCA). These helped strengthen the study findings and guide the recommendations for more effective intersectional approaches to vulnerability reduction and resilience-building.[10]

2.2.1. Key informant interviews

KIIs were carried out at sub-national and national level. The questions were prepared by ODI and the BRACED partners to ensure consistency and appropriateness for the given context. We spoke to a range of actors supporting policy and practice, including government ministries and sectoral agencies, UN agencies and non-governmental organisations (NGOs) working on gender and social welfare, DRM, humanitarian response and climate change. This helped us understand what processes exist to build the resilience of the most disadvantaged in the context of climate change and natural hazards, and provided information about governance, policy and institutional barriers and opportunities to more effective intersectional approaches that the survey could not capture. Inputs were critical in assessing the vulnerabilities of different groups, their resilience strategies, types of interactions and coordination that take place in disaster response at different levels and factors that increase vulnerabilities.

NEPAL

The team held 15 KIIs at local (9) and national (6) levels, with 18 interviewees. This includes federal government officials responsible for building inclusive resilience to climate change and disasters from the National Emergency Operation Center (NEOC) in the Ministry of Home Affairs (MoHA); and the Ministry of Federal Affairs and General Administration (MoFAGA); the Ministry of Women, Children and Social Welfare (MWCSW); and the Ministry of Forests and Environment (MoFE). The team also interviewed local and national-level officials in international NGOs (INGOs) and NGOs working on DRM, CCA and gender and social inclusion (GESI), and the Nepal Red Cross Society (NRCS) at national and local levels. At district and municipal levels, interviewees included municipal and ward officials (in Barbardiya and Gulariya municipalities in Bardiya district) and representatives of local NGOs.

KENYA

The team held 22 KIIs, at the national (8) and sub-national levels (14), with officials from government departments and line ministries at local and national levels including NDMA, the Climate Change Unit, the County Department of Gender, Social and Cultural Services, the Department of Environment and Energy Resources, the National Gender and Equality Commission (NGEC), Kenya Meteorological Department and ward administrations. The team also interviewed respondents at local and national level from UN agencies; INGOs and NGOs working on drought management, CCA, DRM, food security and GESI; the Kenya

---

10 In the analysis, KII and FGD quotes are shown as displayed quotations; we mention only the type of institution represented, to make it impossible to identify specific institutions or individuals.

Red Cross Society; and religious leaders from African Inland Church (Christian) and imams (Muslim).

2.2.2. Focus group discussions

The FGDs focused on perceptions of vulnerability to natural hazards and the nature of community and organisational actions to prepare for, respond to and manage the effects of flooding in Bardiya and drought in Wajir. The FGDs helped us gather perspectives from different groups – and included respondents from women's groups or associations in our project areas as well as technical working groups, local government member groups or task force groups working on gender, social inclusion, climate change and disasters. Their inputs were critical in assessing the vulnerabilities of different groups, their resilience strategies and types of interactions and coordination that take place in disaster response at different levels, as well as helping us understand discriminatory power relations that create exclusion and factors that increase vulnerabilities.

NEPAL

Two FGDs were carried out at local level in Bardiya district, involving 40 participants. The first FGD was with 25 community members and local disaster management professionals from implementing agencies, representatives from the Gulariya Local Adaptation Plan of Action (LAPA) Committee and members of the early warning, search and rescue and first aid task force groups.[11] The Gulariya LAPA committee, which is at the municipal level, meets once a month, or more often if needed. It has 27 members, including women, ethnic groups and other community members. There is no quota for caste or ethnic groups but 40% of members must be women. It is active in preparing for floods. Community visits and discussions with community members, local Red Cross branches and local leaders enabled assessment of local priorities and planning of DRM and adaptation measures.

The second FGD comprised 15 community members of two local women farmers' groups working for economic and social empowerment. The two women's farming groups in Ward 4 were established some years ago, and they meet monthly; they are registered with Barbardiya municipality. Activities include training, a savings scheme (NPR 20 ($0.18) per person per month)[12] and producing and selling vegetables.

Two preliminary meetings with communities and community leaders from Ward 2 (where 11 people died in the 2014 floods) and Ward 4 of Barbardiya municipality were also held. Although not formally arranged as FGDs, these identified a range of local concerns about erosion of local land and property

---

11   A taskforce is a component of an early warning system. Under a flood early warning system, there are generally five taskforces (needs assessment; search and rescue; first aid; recovery; communication).

12   All currency conversions are from 13 April 2019 using www.oanda.com/currency/converter/

as rivers have changed their course and owing to bank cutting; 70 local people took part in these meetings.[13]

KENYA

We conducted seven FGDs in Kenya, two in each sub-county and one at the county level. In these, we spoke to 65 respondents at the county level (9) and ward levels (58). Respondents came from government departments and line ministries, INGOs and local NGOs, community-based organisations (CBOs) and vernacular/community radio stations, and also included community leaders (chiefs), elders, religious leaders and members of the community, such as representatives of women's groups, youth groups and persons with disabilities.

Six FGDs were held in the villages from the six wards that were either politically represented or not politically represented (three FGDs were conducted with groups that were politically represented and three FGDs with groups that were not politically represented, held separately in their wards). These brought together between eight and ten people, with women separated from men during the discussions to give them freedom to share their views.

In the county-level FGD, all respondents sat together at a roundtable, because it drew on an established county technical working group that has been operational for more than five years and meets monthly.

2.3. Analysis

The analysis process of the quantitative and qualitative data is outlined below:

- **Surveys:** Survey data was processed to generate the composite resilience index score. This index comprises the four resilience components and is made up of 36 indicators derived from 120 variables (based on the survey questions).[14] The index score, components, indicators and variables can be analysed by sex and social group. Statistical analysis[15] was performed to test differences in the resilience scores between groups.

- **KIIs and FGDs:** The qualitative data from the KIIs and FGDs at the local and national level was analysed to understand (i) local perspectives and experiences of natural hazards and climate change and what the evidence says about vulnerability and exposure to these hazards. This was useful to triangulate the findings from the survey and helped us analyse factors of vulnerability based on the four components of resilience; and (ii) what the data says about DRM approaches and interventions to ensure local/national

---

13   The Ward 2 community was planning to build an evacuation shelter. In Ward 4, families stated that they stored very little grain in their homes in case of flood damage and used the roof of the local school to shelter during floods.

14   All variables were normalised following a max–min approach before aggregation, using arithmetic average with equal weight. The final resilience index is an arithmetic average of the four components, which are equally weighted.

15   A T-test of mean difference was used, considering confidence levels between 0 and 20%.

government and agencies/NGOs and other groups put in place inclusive policies and programming, and what we can learn about intersectional approaches to vulnerability reduction and resilience-building.

- **Workshop to present initial findings:** Key findings for Kenya were shared at the BRACED Annual Learning Event held in February 2019 in Nairobi. Recommendations from this workshop have been incorporated into the analysis and interpretation of results.

2.4. Limitations of the methodology

The survey methodology – adding an intersecting inequality factor to the original gender analysis – was developed and tested for the first time in this project. Training of data collectors and implementation of the survey in communities appeared to go well. However, some of the research findings are difficult to explain. Distinct differences between women and men were to be expected, but the relative lack of difference in resilience between different social groups (in both countries) is puzzling, since the qualitative evidence suggested this would be more significant. Further field testing is needed to give greater clarity, perhaps using a larger sample or focusing on more closely defined categories of disadvantage.

Considering geographical context, including environmental characteristics, access to infrastructure and risk profile, to guide the sampling may help better capture the differences between groups. For instance, in Kenya, the differences among the disadvantaged social groups (with no political representation) and the other social groups are driven largely by geographical location (see Figure 7) in terms of their access to water, roads and formal services (and these aspects were not considered in the initial selection of the villages). This also helps explain why in both countries the findings from the survey for infrastructure resilience are not significant: differences in hard infrastructure are driven mostly by gaps between different villages and not by gaps between the different social groups or between women and men. Moreover, in Kenya, it would be interesting to conduct the survey with communities from very remote areas,[16] where people are more marginalised (in terms of access to education and formal institutions) and have a nomadic lifestyle.

The qualitative methods (KIIs, FGDs) generated good data and provided a more nuanced picture of what is happening in terms of policy and practice. But the insights into social aspects (clan/caste/ethnicity/other types of disadvantage), including social tensions and power relationships, were relatively limited. This may owe in part to the fact that government and non-government interviewees may themselves be outsiders to many of the social groups they seek to support, or to interviewees' caution about dealing with marginalisation and exclusion of particular social groups.

---

16   This was the original intention in Kenya but at the time of study there was insecurity in these areas, significantly affecting Somali ethnic groups in Kenya, especially their rights and access to services.

There is a need for further reflection and discussion on how to take this methodology forward to systematically consider other factors of inequality, including age, disability and religion. Quantitative surveys building on the toolkit methodology can inform further analysis on intersectionality but the approach should be used with caution. Adaptation to other aspects of inequality besides sex may need further refinement. Disadvantaged groups need to be clearly defined from the outset to be a meaningful category for analysis, based on existing literature, stakeholder consultation and qualitative information. An insufficiently clear definition of disadvantaged social groups or categorisation of households during the survey can distort results, lead to overlap between study groups and result in the absence of significant differences between groups. As such, it is important to ensure the categorisation is well informed.

3.
NEPAL CASE STUDY

Image: ILO/
Pradip Shakya

3.1. Hazard, vulnerability and disaster management context

3.1.1. Hazard and vulnerability context

Nepal is classified as a high-risk country, taking into account not only hazard exposure but also vulnerability and coping capacity (INFORM, 2018). The country is particularly exposed to floods, landslides, earthquakes, fires, lightning cold waves and storms. According to the DesInventar database, between 1971 and 2013, natural hazard events led to 16,098 deaths, affected 6,391,568 people and destroyed or damaged 447,276 houses. Fire accounted for nearly a quarter of all reported shocks, closely followed by floods, epidemics and landslides. Most of the reported deaths owed to epidemics, but floods caused the greatest damage to housing and also resulted in the greatest number of indirectly affected people. From 1983 to 2013, landslides and floods resulted in losses worth $235.8 million, more than 8,000 deaths and 228,561 houses destroyed.[17] Recent years have seen increases in mean annual temperatures and precipitation, which are predicted to increase consistently and continuously in the future as a result of climate change (Devkota, 2014).

17 www.desinventar.net/

About 70–80% of Nepal's annual rainfall is received between June and September, frequently leading to riverbanks overflowing, bank-cutting, sedimentation deposition and widespread flooding. The country's river systems flow into the Tarai plains, which are particularly exposed to floods. In recent decades, the Tarai has witnessed considerable growth in infrastructure, roads and urbanisation, which has obstructed drainage and thereby contributed to the severity of flooding (Dewan, 2015; Gaire et al., 2015). In 2014, monsoon floods and landslides affected 30,000 families in 17 districts. In 2015–2016, 244 flood events were recorded, affecting 7,141 families, damaging 2,628 houses and causing NPR 47,296,501 ($423,405) in economic losses. In 2017, heavy monsoon rains triggered floods and landslides in 35 out of a total of 77 districts: floods affected 1,688,474 people across the Tarai, destroyed 43,400 houses and damaged 191,700 (MoHA, 2017; Holmes et al., 2019).

Nepal also faces challenges related to climate change, including shrinking glaciers, glacial lake outburst floods, more erratic rainfall and alterations in the pattern of temperatures and climate variability. The government estimates that 1.9 million people are highly vulnerable to risks associated with climate change, and an additional 10 million will increasingly be threatened by the same risks (UN CDP, 2018).

The World Bank's Nepal Household Risk and Vulnerability Survey in 2016 collected data on the impact of flooding and landslides on locations and their populations in 72 Village Development Committees (VDCs). This showed that the effects of these natural hazards tended to be geographically concentrated. Nevertheless, the damage caused by flooding to homes and infrastructure can be considerable and long-lasting, in addition to causing displacement, disrupting access to services and increasing the risk of disease. The poorest households are often forced to borrow money and reduce their food consumption. Other studies have shown that marginalised or disadvantaged groups (e.g. women, children, older persons, members of the Dalit community and persons with disabilities) face increased exposure to protection risks. Women (particularly single women and female-headed households) face additional workload as a result of increased care responsibilities. Flooding also kills crops and drowns livestock, thereby damaging agricultural livelihoods (Holmes et al., 2019).

3.1.2. Disaster risk management policy and institutions

Nepal's policy and institutional arrangements for DRM have evolved considerably in recent years, from a focus on response to a broader approach. The response-focused 1982 Natural Calamity (Relief) Act was the main legal instrument for many years. In September 2017, Parliament passed the Disaster Risk Reduction and Management (DRRM) Act, which has a greater focus on DRR and preparedness and mandates a new DRRM Authority.

The 2009 National Strategy for DRM, introduced following severe floods, followed the Hyogo Framework for Action 2005–2015 (HFA) principles by setting out a broader approach that aimed to integrate DRM into sectoral planning and strengthen community resilience capacities. This included mainstreaming

DRM into development plans; ensuring life safety and social security; emphasising GESI; and decentralising implementation. The 2011 National Disaster Response Framework aimed to ensure consideration of all elements of the disaster management cycle; it also allocates responsibilities between relevant actors (Holmes et al., 2019).

It has been officially acknowledged that Nepal's progress in DRM during the HFA period was uneven. There was a need for a stronger policy and institutional framework. Nepal's 2015 Constitution and the 2017 DRRM Act give DRM high priority, making it a shared responsibility for all government levels (national, provincial, district, local/municipal), but particularly local governments; there is also provision for forming community-based preparedness and response committees (MoHA, 2017).

The 2017 DRRM Act supersedes the 1982 Natural Calamity (Relief) Act as well as responding to Nepal's recent constitutional changes. It covers all key components of DRRM and endorses risk-informed development. It establishes new institutional mechanisms, which include the DRRM National Council, chaired by the prime minister (and which is ultimately responsible for works relating to DRRM), and an Executive Committee to enact policies and plans approved by the Council (MoFAGA is part of this Committee). It establishes a National DRRM Authority, responsible for implementation and coordination of disaster management activities and for receiving and mobilising cash and in-kind assistance. This Authority is yet to be established but MoHA, which has historically focused on disaster preparedness and response, is currently carrying out its activities – although the new Authority's powers and authority are not yet fully defined. A number of other government institutions have defined roles and mandates in DRRM. The Government of Nepal (GoN) has also developed a new National DRR Policy and a National DRRM Strategic Action Plan 2018–2030 to replace the 2009 strategy. Aligned with the Sendai Framework, this is intended as a road map for DRRM until 2030 (MoHA, 2017; Nepal et al., 2018; Holmes et al., 2019).

The 2015 Constitution (which established a federal system of government with extensive devolved authority) and the 2017 Local Governance Act shift responsibility for response and DRRM to municipalities and rural municipalities. To do this effectively, local governments will need additional trained staff, adequate finance and greater institutional capacities. The challenge in supplying these capacities was a recurring theme in the KIIs conducted by the project (Section 3.3). Donors and development partners also continue to play an important role in funding and implementing DRM interventions (MoHA, 2017; Holmes et al., 2019).

The government identifies eight priority action areas in DRM (MoHA, 2017):

- creating an effective institutional set-up under the terms of the 2017 DRRM Act

- capacity-building at all levels of government for DRR, preparedness, response and recovery

- institung a practice of risk-informed development and mainstreaming
  DRR and CCA into sectoral development planning

- ensuring allocation of adequate funding for DRR and CCA at all levels

- empowering provincial and local governments to take effective leadership
  roles in DRM

- setting up an effective Disaster Information Management System (DIMS)
  at central and provincial levels

- ensuring gender-responsive DRM (acknowledging that progress on making
  DRM approaches inclusive has previously achieved limited results on the
  ground) and

- strengthening local search and rescue capacity to International Search and
  Rescue Advisory Group (INSARAG) standards.

Regarding the Sendai Framework, the government seeks to reduce death rates, loss of livelihoods and property, and to significantly reduce disasters' impact on gross domestic product (GDP) (from 20% in 2015 to 5% in 2020 and 0.1% 2030). Progress towards the Sendai Framework is presented and discussed in the GoN's Annual Disaster Report (MoHA, 2017). For more information on Nepal's political and constitutional context and governance of DRM see Annex 2.

3.1.3. Bardiya district, Nepal

Bardiya district is in Province 5, in the Tarai ecological region. Slightly more than half of Nepal's population lives in the Tarai, and population density is considerably higher than the national average (CBS, 2014). Province 5 is socially and ethnically diverse. The major social groups are Khas Aryas (includes Brahman and Chhetri), Dalits, Magars (Hill Janajatis), Tarai Janajatis (mostly Tharus), Madhesis and Muslims. Hill Janajatis make up 19.58% of the population, Tarai Janajatis 14.88%, Dalits 14.07% (including Madhesi Dalits), Madhesis 14.5% and Muslims 6.65% (CBS, 2014; Nepali et al., 2018).

Bardiya district consists of six municipalities (Gulariya, Rajapur, Madhuwan, Thakurbaba, Bansgadhi and Barbardiya) and two rural municipalities (Badaiyatal and Geruwa). In the 2011 national census, the district had a population of 426,576 (205,080 male, 221,496 female) in 83,147 households. Population density was slightly above the national average (211 per km² compared with 180). The predominant group is Tharus, with a population of 226,089 (57%) (Figure 3).

Figure 3. Bardiya district – population by caste/ethnicity, 2011

Tharu, 57%
(Janajati – disadvantaged group)

Chhetri, 12%
(Other group)

Brahman-Hill, 10%
(Other group)

Kami, 6%
(Dalit - disadvantaged group)

Magar, 3%
(Janajati – disadvantaged group)

Musalman, 3%
(Madhesi – disadvantaged group)

Total of other social groups from both
disadvantaged and other groups, 9%
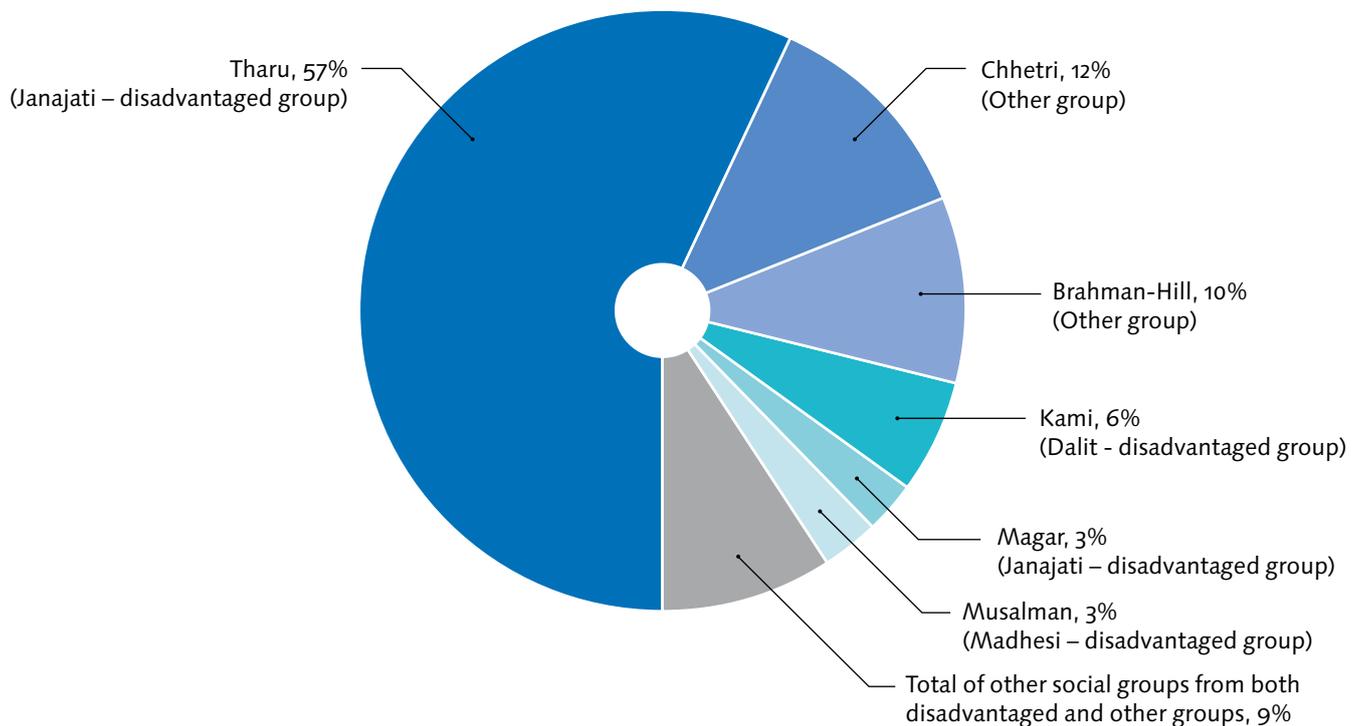
Source: CBS (2014).

Four major rivers run down from the hills and through Bardiya district into India:
the Karnali, the Gewiya, the Mankola and the Babai (see Figure 4). The Karnali,
one of Nepal's largest rivers, originating in the mountains, is divided into
multiple branches when it reaches the Tarai. The westernmost branch forms
the boundary between Bardiya and Kailali districts. Gulariya, the district's
administrative centre, lies on the Babai River.

Flooding is the main hazard in Bardiya; other significant hazards are fires,
droughts, road accidents, cold waves, hailstones and wild animals (DEOC
Bardiya, n.d.). Two major floods, in September 2014 and August 2017, caused
significant damage across the district. The 2014 flood killed 32 people, damaged
or destroyed over 17,000 homes and affected 93,000 people. The 2017 flood killed
only four people (thanks to improved EWS), better coordination of emergency
services and pre-positioning of search and rescue boats, lifejackets and other
equipment) but damaged or destroyed 20,640 homes and affected nearly
110,000 people. Flood impact was spread across the district but the biggest
impacts were in the municipalities of Gulariya and Barbardiya (ibid.).

Figure 4. Flood risk in Bardiya district, Nepal
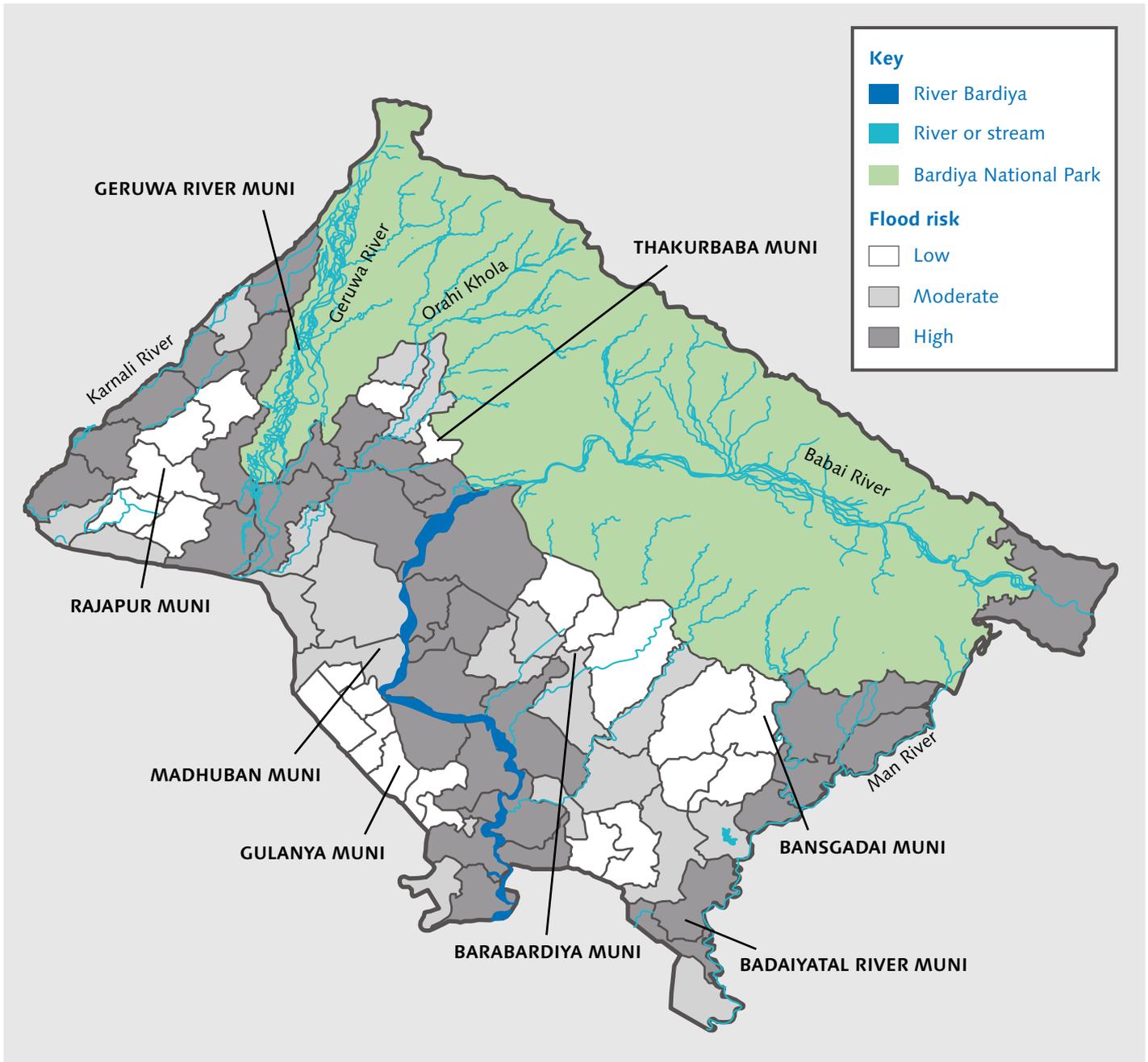
Source: DEOC Bardiya (2018).

3.2. Findings for Nepal

This section presents the findings from the survey, which are explored first through the differences between women and men and then through a cross-analysis of women and men from different social groups. We then look at the four components of resilience, drawing on the survey data and the KIIs and FGDs. Where possible, we include some official data from the 2011 National Population and Housing Census (which are presented in the 2014 Population Atlas of Nepal (CBS, 2014)), when it is relevant to the four components of

resilience identified in this paper.[18] Finally, we use the data gathered through the KIIs and FGDs to explore intersectional approaches to vulnerability reduction and resilience-building, looking at institutional structures, data collection and local capacity-building and approaches to build resilience at the household level.

3.2.1. Summary of findings from the survey across the four components for Nepal

A summary of the findings from the resilience index for men and women is outlined below.

- **Men are overall more resilient than women to natural hazards and climate change. This is clearly reflected in at least two of the four components of resilience (see Figure 5).**

- **The differences between women and men are statistically significant for the social (at 10% confidence level) and institutional (at 15% confidence level) components of the index.**

Figure 5. Score for the four components of the resilience index in Nepal, by sex
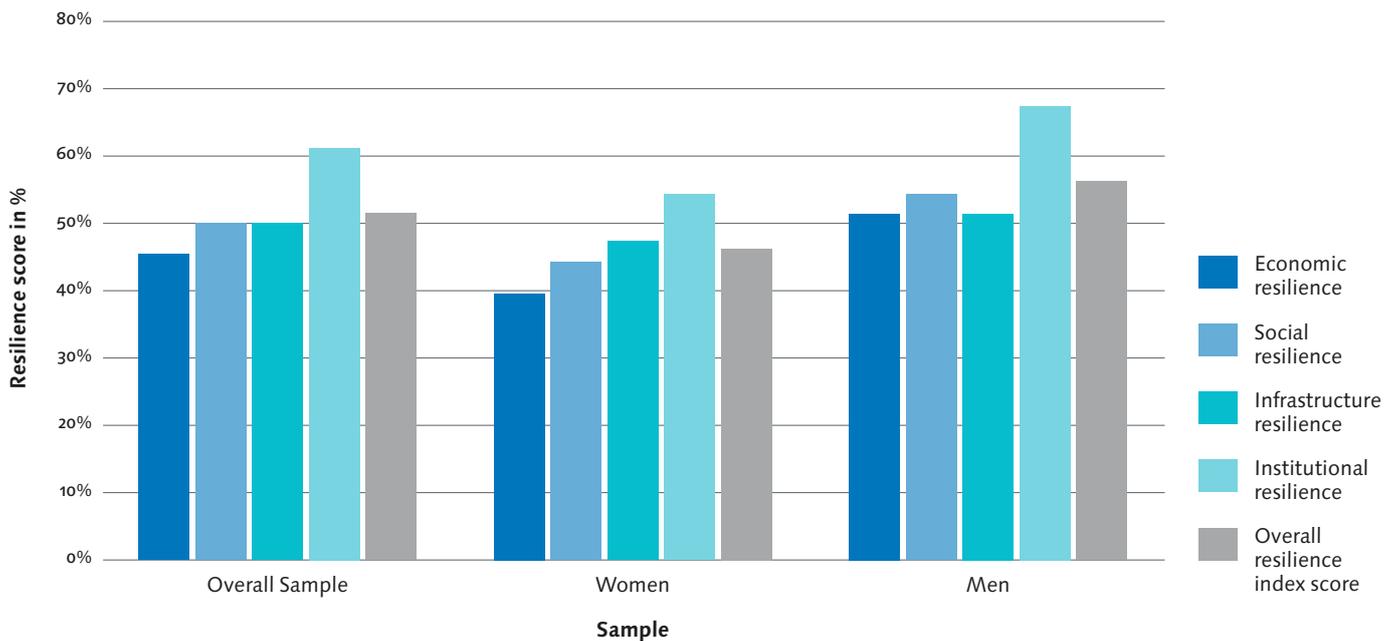
When we compare women and men, taking into account the social groups they belong to (disadvantaged groups or other groups), the results show that (see Figure 6):

- **on the overall resilience index, there are differences between women and men in both the disadvantaged social group and the other group. These gaps have higher statistical significance and are more pronounced in the disadvantaged group. In this group, results show that women are 12 percentage points (45% compared to 57%) less resilient to natural hazards and climate change than men from the same social group. Such differences are mainly driven by the social and institutional components of the index.**

- **The low resilience of women, especially those from the disadvantaged group, appears to be mainly due to the following factors (discussed in more detail in the sections below):**

  - **poor access to, and control over financial resources, along with low capacity to earn cash daily**

  - **high reliance on migration but low provision of additional income from migration**

  - **poor access to information from official sources, as well as to phones and radios to receive early EWS messages**

  - **food insecurity**

  - **restraints on mobility outside of the house without accompaniment by men**

  - **lower likelihood of feeling safe in public shelters during disasters**

  - **poor access to leadership roles, opportunities to participate in community decisions and training programmes.**

The tables in Annex 1.1 explore in more detail the differences between the four social groups (women from disadvantaged groups, men from disadvantaged groups, women from other groups, and men from other groups). Scores reported in the table have already been normalised for each question, meaning 0 represents no resilience and 1 indicates maximum resilience capacity.

Figure 6. Score for the four components of the resilience index in Nepal, by social group
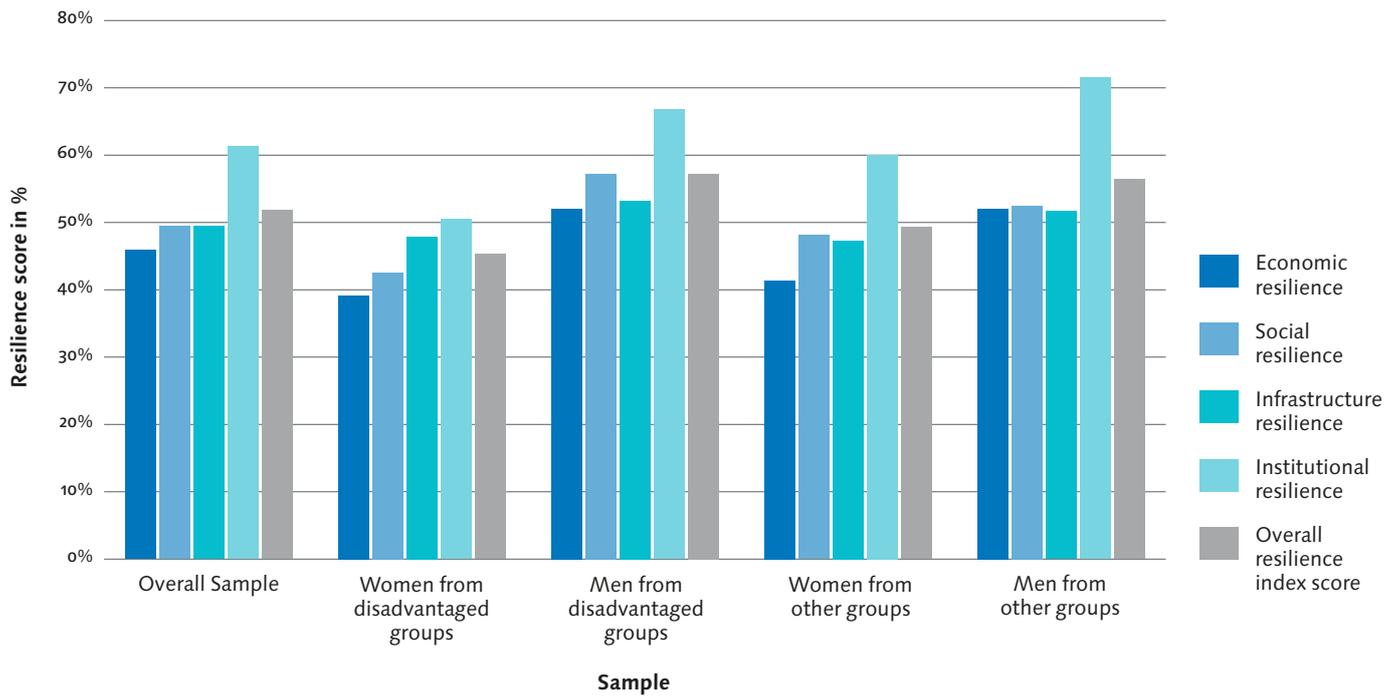
3.2.2. Economic resilience

- Men appear to have better access to, and control over, financial resources and therefore have more economic capacity to anticipate and smooth the economic impact of a shock. Survey evidence suggests there is a significant gap between the number of women and the number of men who report having the same type of access to financial resources as their other family members. The difference between women and men is substantial in the disadvantaged social group: 71% of women report having similar access as others, compared to 91% of men. Women are also less convinced than men that migration gives them and their families a better income.

- The survey findings show that the most important difference between men and women is capacity to earn cash on a daily basis. On average, 43% of the sample earn some cash every day, but the difference between women and men is substantial. In the disadvantaged social group, 12% of women and 63% of men can earn cash daily; in the other social group, 27% of women and 72% of men can earn on a daily basis.

- Ability to repay loans on time also shows a statistically significant difference between women and men: 44% of women and 89% of men from the disadvantaged group and 58% of women and 88% of men from the other group can repay loans on time.

KIIs and FGDs suggest a number of reasons for this. There was common agreement that, in general, disasters affect disadvantaged groups the most, and that poverty and settlement patterns contribute to the vulnerability of such groups. They are compelled to live on marginal land or land they do not own, often in remote locations or on flood plains or close to rivers that are liable to change their course. Their homes are not flood-resistant. Yet, being poor, they are also reluctant to abandon their property in times of flood. Poverty was recognised as a significant risk factor – one key informant said poverty reduction was the '*most powerful thing to reduce the disaster*'. In Bardiya, those in possession of wealth are able to build more resilient houses in safer locations. According to the 2011 census, only 8.62% of women own land and 19.5% own fixed assets (CBS, 2014).

The 2011 census states that 56.6% of the population in Bardiya district are economically active (63.2% of men; 50.7% of women), and in total 69.44% of these are economically active in agriculture, forestry and fishery (CBS, 2014). There is a clear need to build resilient and diverse livelihoods. KIIs highlighted that many local households had only one income source, hence the importance of introducing flood-tolerant varieties of seeds / crops and alternative sources of income. Limited livelihood options can also increase physical risk from flooding, if disadvantaged social groups have to live near rivers or choose to live near them so they can fish and water livestock.

KIIs noted that location influenced vulnerability to flooding – in particular proximity to rivers. People living close to a river, often in earthen housing that is not raised above the ground, were seen to be extremely vulnerable. There is a correlation between dwelling location, poverty and lack of land title. As one government official observed:

> … [The] ultra-poor are those who live close to the riverbank, as those with money can build their house in another place, but the poor have no option, they have to live by the river and their house gets washed away every time.

Box 1: The role of the proximity to rivers

Living close to rivers was widely recognised to be the result of poverty: poor people, particularly families working as tenants, cannot afford to live in safer locations. KIIs explicitly identified Tharus as a distinct vulnerable group, which was said to be due to poverty forcing them to live close to rivers or as tenants in poor-quality housing that was easily damaged, with large families and an unwillingness to migrate from their ancestral homes.

However, KIIs also highlighted how some disadvantaged communities, including Tharus, chose to live by the river, because their main livelihood source was raising livestock and they relied on the river to water their animals. Madhesis and other disadvantaged groups also live near the

water because they obtain their livelihoods from fishing. A local NGO key informant stated that:

> *Ethnicity and caste do have an influence [on people's vulnerability to floods]… Janajatis live near the riverbanks… [because they are] farming land nearby [and have] livelihoods based on fishing… So they are affected more; Tharus are more inclined to fishing when there is a high water level. Disadvantaged groups… are also living away from others and living near the river and the jungle.*

KIIs often suggested that Dalits, Janajatis and ultra-poor people were the most vulnerable to floods, because they lack the financial resources to help them recover. Relocation is not a realistic option for most of these households, which cannot be resettled without land to farm. As one government official stated:

> *The major challenges for [the] ultra-poor is that they don't have land in their own name and so resettlement is the main challenge as they can't now buy land, and so they build a temporary shelter, which is washed away every year.*

Others do not want to be relocated to safer land, because this would mean moving away from their community and livelihood. In these situations, the municipal government has been requesting NGOs to raise awareness about flooding, and to promote the construction of houses on raised land with raised plinths. Land titling is clearly important, particularly in terms of rebuilding and relocation: poor people are less likely to own land and more likely to live in temporary shelters that could be washed away every year.

3.2.3. Social resilience

- **The survey results reveal that the difference between women and men in average social resilience is large and statistically significant: women are 10 percentage points (45% compared to 55%) less resilient than men to natural hazards and climate change. In the disadvantaged social group, the difference between women and men is even more pronounced, as these percentages are 42% and 57% respectively.**

- **Women are far less likely than men to receive information from official sources (e.g. government announcements) in both groups (scores for those stating they receive such information are 26% and 86% respectively in the disadvantaged group and 42% and 64% in the other group).**

- **Among women, questions around food security demonstrate differences between social groups. Only 32% of women from the disadvantaged group felt there was enough food in the household to feed everyone adequately throughout the year, against 62% of women from the other group.**

- **Women are less convinced than men that migration gives them and their families a better income (29% and 49% respectively from the disadvantaged group and 38% and 64% from the other group).**

Social inequalities are widespread and deep-rooted in the Tarai, where there are complex social structures that can be hard to understand. This can make it difficult to identify the distinctive vulnerabilities of specific groups. Nonetheless, there was general agreement in KIIs and FGDs about which social groups were most marginalised and vulnerable – women, particularly pregnant and lactating women, older persons, children and persons with disabilities.

Gender roles are clearly defined, with women's responsibilities being primarily domestic, including childcare and taking care of property. There was some evidence of moves to improve women's protection in disaster contexts in Nepal (e.g. addressing physical vulnerability and hygiene needs in shelters, and challenging gender-based violence (GBV)). Still, the traditional attitude towards gender roles and norms, expressed in the mostly male narratives of KIIs and some FGDs, was of women as victims and vulnerable to flooding, rather than recognition of their capacities. Reasons given in KIIs for why women are more vulnerable broadly include:

> *Women are biologically weaker and men physically stronger… Women need to take care of their children… Women fear disasters more; women love their properties more than men and in some cases refuse to leave their properties as they will lose everything… Men are more aware of floods and risks and are more resilient… Men are more capable of coping with disasters and have more energy than women… Women do not want to get rescued by a man; women cannot read messages about disaster… Women have limited ability to swim* (various KIIs).

In several KIIs, it was said there was no difference in terms of how people are affected ('*Flood impacts all at the same scale')*, but informants recognised people's coping capacities were different. In relation to the different vulnerabilities of women and men, or factors contributing to people's vulnerability to flooding, answers covered personal, situational and social factors. Physical differences between women and men were regarded as important. Several interviewees mentioned the differences between women and men's clothing (women in sarees are unable to run quickly in an emergency; men can escape faster, climb trees or swim) and physical strength. Women's toilet and menstruation needs during flooding were also mentioned. In national KIIs, responses to questions about vulnerability tended to focus on personal, situational and social factors. As in local KIIs, government responses focused more on 'unsafe conditions' than on underlying risk factors and trends. NGO interviewees appeared to be more aware of underlying factors and put more emphasis on marginalisation.

In 2011, 25,044 people were absent from the district, which is 5.5% of the population (CBS, 2014). Migration for work is a common response to poverty in the Tarai and Nepal as a whole (see Annex 2). Many men work outside of their villages in India (given the proximity to the Indian border) and in other countries. In response to survey questions, 59% of the sample mentioned

that a member of their household had migrated as a livelihood strategy and 44% believed that migration increased household income. Women were less convinced than men that migration gave them and their families a better income (29% and 49% respectively from the disadvantaged group and 38% and 64% from the other group). Several KIIs raised the issue of male migration as a challenge for the female-headed households left behind, and as a contributing factor to their vulnerability. Although some men return home to plant crops, women are often responsible for saving lives and preserving food and assets during the flood season. They are responsible for making decisions for the whole household, which can be a challenge because it upsets cultural norms; and they are also without male support and protection in flood emergencies.

> *Women are most victimised due to foreign jobs [and are] most affected [by floods]. Many men have gone for foreign employment and women have to take care of household goods, children, family and the old age people. Women should do cooking and cleaning which is very difficult when there is no fire wood, gas; so for a few weeks they have to survive with nothing* (GoN).

Women's family obligations – taking care of the elderly, persons with disabilities, children, and livestock – also makes it harder for them to leave the home in a crisis, as do cultural barriers to women's mobility without accompaniment of male family members. In the disadvantaged social group, 53% of women said they must be accompanied when they leave the house and go outside the village, whereas only 15% of men reported restrictions on their mobility.

Women were sometimes said to be less aware than men of flood risks and, being less literate than men, have less access to disaster information. In particular, our research found that women are far less likely to receive information from official sources (e.g. government announcements) than men in both groups: scores for those stating they receive such information are 26% and 86% respectively in the disadvantaged group and 42% and 64% in the other group. Nevertheless, there were several references to the value of local knowledge:

> *People train in technical knowledge and there is so much local knowledge which we never listen to; we just rely on engineers who don't know or understand the local context. There were lots of floods in my childhood too but not much damage, but now [there are] lots of casualties because local knowledge has been lost.*

Access to education and information communication technology can also influence people's vulnerability to floods. Our survey suggests men may have better access to information owing to their greater access to phones and radios. Gender gaps exist in both groups but are more pronounced in the disadvantaged group. In this social group, only 56% of women have access to a telephone compared with 89% of men, and only 26% of women have access to the radio compared with 51% of men. The 2011 census shows that, in Bardiya district, the adult literacy rate is 56.5%: the male adult literacy rate is 67.3% and the female rate is 47.1%; mean years of schooling is low, at 3.46 years (CBS, 2014).

The KIIs and FGDs made little mention of vulnerability in relation to different ethnic or caste groups and status. Poverty was more likely to be recognised as a factor (as highlighted in the economic resilience section above), because possession of wealth makes it possible to build more resilient houses, and people with money are better able to respond to flooding. There was mention in one FGD of a lack of harmony between Brahmins and Dalits, but for the most part the group discussions steered clear of the issue of social tensions between different caste and ethnic groups, and of power relations in society. This was surprising, given the relatively recent unrest relating to issues of ethnic and caste identity in parts of Nepal, including the Tarai (The Asia Foundation, 2017) (see Annex 2). The reasons are not clear.

Differences between social groups were identified, principally relating to poverty, geographical location and differing levels of empowerment. For example, Madhesi communities were seen in many KIIs as particularly vulnerable to floods, owing to cultural norms that restrict Madhesi women's mobility outside the household without a male relative and limit their participation in training. In contrast, Tharu women were seen to be fairly empowered (see Box 2), with more decision-making responsibility, but when it comes to decisions around *'money, assets [and] property, they have to ask their husbands'* (NGO).

Box 2: Tharu and Madhesi society as described in KIIs

Unlike the Madhesi communities, Tharu communities don't have that much disparity between men and women. Some kind of maternal tradition still exists to some extent. In Madhesi communities, it's a male dominated community, women are not allowed to go out for trainings and other social events… Tharus are more liberal and they even have the practice of women leading households, whereas other communities are more male-headed. Tharu women are also allowed to participate in training (NRCS).

In Tharu community there is not so [many] differences between women and men. In flood-affected communities there are mainly women there, men used to go out for earning due to low cultivated land. In Tharu community they prepare Deri [high raised food storage mud tank]. Recently people made high raised house with two storeys; their important documents, food books are kept in [the] upper storey of two storeys [Aati] during monsoon seasons (GoN).

Tharu Janajatis are much forward in communities; Dalit, Janajatis are deprived; Madhesis are most backward and it is very difficult for Madhesi women to come out and do trainings and employment, even compared to Janajatis and Dalit women. It may be because of religion or culture – they don't want to change. In mixed communities, it is relatively easier to facilitate development and change (GoN).

Tharus are a bit uplifted with education and awareness, but Madhesis are illiterate and do not have awareness. Janajatis, disadvantaged castes, Dalits are lagging behind… [We] need to increase literacy among Madhesi and disadvantaged communities (GoN).

Household preparations for flooding include raising houses, collecting dry foods (and putting these in safe places above water levels), and putting other possessions including legal documents in safe places, evacuating more vulnerable family members such as older persons and children to higher ground (women's group members considered ensuring children were safe from impending floods as a top priority) and storing water purification materials.

3.2.4. Infrastructure resilience

- **The survey results show that the difference in average infrastructure resilience between men and women is not statistically significant.[19]**

- **Exploring the details shows that access to phone and radio and fetching water for the household are the main areas where results differ between women and men. Men have better access to phones than women, which makes them more likely to be the first recipients of EWS messages; 65% of women from the disadvantaged group fetch water for their households, while 46% of women (compared to 32% of men) from the other group do.**

- **Also, women feel much less safe in public shelters during disasters than men: 18% and 34% respectively from the disadvantaged group and 27% and 56% from the other group. It is noteworthy that men from disadvantaged groups also feel unsafe: this could perhaps owe to fear of discriminatory practices there.**

In Bardiya district, EWS have been improved; there is better coordination across agencies and scales; flood monitoring technologies (gauges) have been installed; and warnings are transmitted earlier and more efficiently (particularly through SMS and social media). Municipalities are working on awareness-raising, providing early warning to communities, stockpiling goods and preparing shelters. There are several local disaster management committees and task force groups and training has been given in early warning, search and rescue, first aid and community-based disaster risk reduction (CBDRR). External assistance has played an important role in some of these improvements: in particular, EWS development has been supported by Practical Action, Mercy Corps, the European Union and BRACED's Anukulan project. However, there is no warehouse to store materials in Bardiya district: there is an NRCS regional warehouse at Nepalgunj

---

19   Differences in hard infrastructure are mostly driven by gaps between different villages, and not between the different social groups or between women and men, who for this study were living in mixed communities.

but during flooding the road cannot always be accessed because of collapsed bridges and infrastructure damage.

There is multi-agency coordination[20] on flood early warning across the district and the Karnali River Basin, and with India. Recent years have seen significant improvements in flood EWS, which were recognised in the KIIs. The experience of the 2014 floods (the floods were unexpected, arrived in the night and there was no warning) was often contrasted with the 2017 floods, for which communities received warnings 10–12 hours ahead and had time to prepare and evacuate. One government official stated:

> We have very good EWS channels and service delivery with different lead times. There is an automatic risk indicator [river flow measurement gauge] at Ghuiyabari, Salyan. If the river rises above 6 metres, it indicates flooding danger downstream in Bardiya. The flood water takes six hours to reach Chepang from Ghuiyabari. Again, Ghuiyabari has another manual flow measurement system through which the flood passes to reach Bhadapul. To reach Bhadapul from Chepang, it takes three hours. This allows a total of nine hours of lead time to reach flood risk communities. During the time, meetings at DDMC [District Disaster Management Committee] take place… DEOC [District Emergency Operations Centre] message is distributed through SMS, phone calls, to the community people through task force based at the communities themselves. Jhatpat jhola [emergency bag] is in stock to distribute to communities in case of disaster. For emergency rescue operation, APF [Armed Police Force], are called.

In villages, the EWS task force groups monitor river water levels, particularly during monsoon season, and they provide an early warning through FM radio broadcasting, sirens, megaphones and messages and calls to mobile phones. Of the people interviewed in the survey, 91% trust these warnings. The practice of using microphones has decreased since 2015, and it has been difficult to find people to use microphones in vulnerable communities. Instead:

> Digital information (like mobile messaging, radio broadcasting etc.) is required. Getting disaster information on newspapers/print media is not in practice. Now, Facebook and other digital media has come out and has increased the quick flow of information [but] women cannot read messages (GoN).

Table 2 provides the 2011 census survey data for access to household amenities in terms of telecommunications in Bardiya district in 2011. Along similar lines, despite being years later, the data from this research reveal that the majority of people in the region do not seem to have access to the Internet, with only 13% of those surveyed by this project saying they are connected. This percentage is even lower for women: 3–8% depending on social group.

Table 2. Percentage of households by type of household amenities

Radio	Television	Cable television	Computer	Internet	Telephone	Mobile phone
47.4%	27.9%	5.05%	1.70%	0.49%	2.46%	61.8%

Source: CBS (2014).

FGDs and KIIs confirmed that EWS have improved considerably in recent years, with hazard early warnings arriving sooner and reaching a larger number of people. FGD participants were clear that improvements to the EWS had saved lives in 2017: mobile phone warnings were received two to three days ahead of the flood, damage was more limited and there was very little loss of life. Mobile phones, which are now widely used to give early warning information, enable LAPA committees to communicate with rain/water level gauge monitors and communities at risk. There is also direct communication with the DEOC in Gulariya and with Anukulan staff.

> They have very good system… in early warning task force… and in each community they have someone responsible and they can reach everyone so no-one is left behind (FGD, LAPA committee and EWS task force).

> During 2017 flood, the people were aware with the information and the human death was less. While in 2014, it was a big loss as there was no information about the flood prior to flood… We are also in direct connection to DEOC… [and] Anukulan were in communication during the flood whole day and night (FGD, LAPA committee and EWS task force).

In response to the survey question, 'If you get an early warning would you go to a shelter?', the number of 'yes' responses was lower among the disadvantaged groups (around 60% in the disadvantaged group against more than 72% in the other group). KIIs highlighted women's vulnerability in evacuation shelters, because of safety and personal hygiene/sanitation requirements, and there is some anecdotal evidence of women's unwillingness to go to shelters. Women feel much less safe in public shelters during disasters than men: 18% and 34% respectively from the disadvantaged group and 27% and 56% from the other group. Interestingly, men from disadvantaged groups feel unsafe too, perhaps because of fear of discriminatory practices.

Flood damage to infrastructure, especially roads and bridges, was identified as a problem by formal DRM actors but not by communities, even though it hinders relief distribution and can affect whole communities that are cut off. Poor or damaged infrastructure (e.g. roads, bridges) is known to have hindered relief distribution after floods in Bardiya. KIIs suggested that, under the new federal governance system, while there were many opportunities to inform and influence elected representatives and staff in 753 local government units, interventions providing an immediate impact, such as infrastructure development, were likely to be prioritised, rather than addressing social issues that might not result in visible change for many years.

3.2.5. Institutional resilience

- On average, men have a 13 percentage point higher institutional resilience score than women (55% for women compared to 68% for men, statistically significant at a 15% confidence level).

- Only 74% of women from the disadvantaged social group take part in decisions in their community, while 100% of men in both social groups reported participating in decisions.

- Men from both disadvantaged and other groups are very confident they have the same access to leadership roles as other family members (94% of men from the disadvantaged group and 98% of men from the other group). Far fewer women in both groups believe they have such opportunities (43% of women in the disadvantaged group and 58% of women in the other group).

- Access to training opportunities shows a distinct difference between women and men, with men enjoying higher access; this is more pronounced in the disadvantaged group (53% of women compared to 96% of men in the disadvantaged group and 75% of women compared to 92% of men in the other group).

- Knowledge of the existence of local disaster plans was consistently very low in all categories (13% of the overall sample). 9% of women from the disadvantaged group were aware of an official disaster plan while 16% of men from the other group were aware of a plan.

- Perceptions of media and journalists present important discrepancies between groups.

Roles and responsibilities are often still very gendered, according to KIIs, and it remains difficult for women and marginalised groups to access resources. As one government official stated, '*Women may still face uncooperative behaviour from other municipal stakeholders.*' Survey evidence confirms that men from both disadvantaged and other groups are very confident they have the same access to leadership roles as other family members (94% of men from the disadvantaged group and 98% of men from the other group), whereas far fewer women in both groups believe they have such opportunities (43% and 58% of women for the two social groups, respectively).

Along the same lines, only 74% of women from the disadvantaged social group reported taking part in decisions in their community, while 100% of the men from both social groups reported doing so. These gaps translate into a significant difference (at 15% confidence level) in the overall institutional resilience score of women compared to men. Nevertheless, the new Constitution appears to have had some positive change already: women and other citizens can report incidents, including domestic violence, directly to a municipal judicial committee. There is also a centre where victims can stay while the respective municipality helps them file a legal case. In Bardiya, these changes are said to have resulted

in increased reporting, as it is now easier for women to come forward than under the former system, where complaints were made to the police or a court.

The severe 2014 floods were a catalyst in Bardiya and other districts for renewed efforts and for rethinking how to manage flooding. The emphasis remains operational, particularly disaster preparedness and response (e.g. stockpiling, early warnings, training in first aid and search and rescue), and the district has task force groups on EWS, first aid and search and rescue, as well as an active LAPA committee. Of the 120 people interviewed during the field survey, 88 people answered 'yes' to the question, 'Do you have access to external assistance following a disaster when needed?' External assistance by NGOs has played an important role in some of these improvements mentioned above. LAPA committee and EWS task force group members were explicit that there should be no discrimination among castes and ethnicities, and they seek to ensure participation of women and young people from disadvantaged groups in local-level DRM planning.

However, it was recognised that economic and livelihood pressures on poor and marginalised people presented a challenge to the empowerment of vulnerable groups and their participation in DRM. Access to training opportunities in the survey shows a significant difference between women and men, which is more pronounced in the disadvantaged group: 53% of women compared to 96% of men in the disadvantaged group and 75% of women compared to 92% of men in the other group. Moreover, overall knowledge of the existence of local disaster plans remains low: on average, only 13% of the population are aware of an official disaster plan. There is also variation based on sex and social group: 9% of women from the disadvantaged group and 16% of men from the other group reported awareness. Such variation may be linked to discrepancies between groups in terms of perceptions of media and journalists, as women and men from the disadvantaged group show scepticism about their advocacy capacity: in this group, 59% of women and 69% of men reported that journalists could help advocate their needs, while 50% of women and 61% of men in the same group felt that the media adequately represented their needs.

The existence of discrimination in society was noted and it was acknowledged that people who were wealthier or from higher castes were often more likely to receive relief and support, while disadvantaged groups (e.g. Dalits and Janajatis) were less likely to receive assistance.

> Usually Janajatis and Dalits don't have access [to information and resources] and they don't receive flood relief… In this community, you can't touch Dalits… they have some discrimination even within shelters (FGD, LAPA committee and task force).

Caste/ethnic differences were also said to contribute to discrimination in public shelters and in distribution of relief. Government capacity is often limited, at various levels, and most local governments have yet to develop inclusion plans. Many other socioeconomic factors, such as poverty, livelihood pressures, lack of education and discrimination within local society, are barriers to engagement.

Traditional social attitudes and practices are recognised to be a strong force within communities.

> *Responders reach late in emergencies because they live far away and are not easy to access. That is how Nepalese society is structured. From political point of view, the hierarchy is there and I think it will be there for another 100 years. Who at the bottom – Dalits – in the Eastern Tarai (Madhesi Dalits more marginalised than hill Dalits)* (NGO).

3.3. Intersectional approaches to vulnerability reduction and resilience

This section considers the extent to which different ministries and operational organisations are taking intersectional approaches to vulnerability reduction and resilience-building in Nepal at the national level and in Bardiya district in response to flooding. This includes what institutional structures exist to support intersectional approaches to vulnerability reduction and resilience building; the extent to which there is coordination on gender, inclusion, climate change, natural hazards and DRRM; if intersecting inequalities and inclusive people-centred approaches are being promoted in DRRM; if ministries and operational agencies working on GESI are considering climate and disaster risk; and if disaggregated data is being collected and to what extent it is being analysed and used to inform policy and programming.

3.3.1. Institutional structures to support intersectional approaches to vulnerability reduction and resilience

Constitutional and legislative changes in Nepal are a clear opportunity to advance a DRRM agenda, although the implications for GESI in DRRM are less clear. National-level stakeholders generally acknowledged the DRRM Act had represented a turning point in GoN's approach to dealing with natural hazard-related disasters. The approach to disasters and resilience is broader and more coherent than previous arrangements and the new five-year plan (2019–2023) will include adaptation, mitigation and DRRM, representing a shift towards a more holistic risk management approach. For the first time there is also an overall government budget allocation for DRRM (previously it focused only on response and relief). The DRRM Act also promotes the integration of DRR and CCA within development activities, which is an important aspect of intersectional approaches to vulnerability reduction and resilience-building, and requires horizontal coordination across different ministries and sectors. Moreover, DRM committees are said to be in place or under establishment at federal, provincial and municipal levels, with community-based committees in some areas (which could help promote better horizontal coordination). Nevertheless, these had not yet been established in Bardiya district, and the operating procedures for coordination and communication between the different levels of government remain unclear.

At present, many municipalities lack sufficient funds to meet local needs and are still dependent on central funds. Under the new governance structure, municipalities have been allocated a budget for flood risk management and reduction. Now all municipalities and rural municipalities in Bardiya District have allocated at least Rs. 1 million (equivalent to £6,794) as emergency funds and the wards have different amounts based on their needs and severity. This has raised people's expectations, however, and, while the municipality has supported communities with material in times of flooding in Bardiya district, one key informant advised that the income at municipal level was unable to meet the expectations of the people or ward members.

KIIs identified coordination between government institutions as a particular challenge arising from the new federal structure. External observers have noted a history of competition for leadership of DRM between different government departments (Jones et al., 2014; Walsh, 2017). Moreover, reliance on external actors, such as national NGOs, may have implications for the long-term sustainability of DRM efforts. Although there are many programmes, implemented by government and NGOs, many are relatively short term. Stakeholders recognised that local government did not yet have the capacity to manage these DRM efforts in the long term, which is a challenge for effective intersectional approaches. Local government officials highlighted a need for more staff, while NGOs need local government support for structural mitigation and reconstruction measures.

Positive and negative aspects of the new federal governance transition were mentioned. KIIs highlighted how it had been 20 years since the last local elections, and before the new governance structure local government officials at the VDC level changed frequently. Now, permanent officials remain in post for five years, so they can be trained accordingly, and there is also more interaction between the local government and communities. Engagement of local representatives in DRM through decentralisation was said to offer opportunities to target interventions and service delivery more effectively based on the local context, needs and knowledge. A KII at the mayor's office in one of the municipalities mentioned, '*I am also a flood victim*' with a better understanding of flood impacts in Bardiya than officials at the federal level, who have traditionally been responsible for disaster management. A local NGO KII highlighted the communication/coordination gap in the new structure, but also the benefits it brings in terms of accountability:

> *[Before] there was a single contact person at the VDC, a secretary to coordinate at the local level. Now, the local level governance mechanism has been bigger with more number of officials to consult with… It takes time, sometimes, project briefing time and again for the same office… However, there has been a good relationship among the different officials; [In terms of accountability] Before, VDC secretary tended to appreciate any work whether it was good or not. But now, actual evaluation is happening, and they do not appreciate if the work is not good.*

Nevertheless, in many cases local administrations did not see DRM and CCA as development priorities, and concerns were expressed about how to meet the increased staffing demands that federalism will require.

Government officials recognise the need to incorporate GESI and the issues of persons with disabilities at all levels in development and disaster contexts, and according to KIIs GESI is being factored into national-level DRM policy and planning (and the work of all other government departments, at all levels). Marginalised groups, particularly women, are identified as priorities. Interviewees with a range of government and other organisations spoke of the importance of gender issues to their work, and there is hope that the constitutional and administrative changes will encourage women to come forward to advocate for their needs, interests and priorities.

Nevertheless, the role and responsibility of Women's Development Offices (WDOs) (now under the municipality instead of at district level) remains unclear, and concerns were raised about how GESI or social protection issues in times of flooding were going to be taken into account. Under the new Constitution, there have been major changes to the role of the WDO in Bardiya, and one KII recognised the challenge of coordination and prioritisation of GESI at local level in terms of funding and programming – which also represents a challenge to intersectional approaches to vulnerability reduction and resilience-building. Before the changes, the WDO was responsible for monitoring GBV; capacity-building; distributing nutritious food for pregnant women, lactating women and children; and coordinating with different offices/organisations. There was a Protection Cluster under the WDO, and two cooperatives supporting women – one with 1,000 members and the second with 500. The KII highlighted how the WDO used to have a budget and reported directly to the district level and to the DDMC and DEOC around protection issues. Since the changes in government, the WDO and Protection Cluster have been moved directly to the municipal level; the KII told us there was now:

> … no coordination… and now it is hard because they have their own systems so we are being seen as outsiders of the municipality and there is not much budget attached to our work. Last year in a monsoon season, they were already in place and got support from the District Office but now there is no District level and the protection committee has not been reactivated… [and so] I have no idea about the future of flood management and protection. It is confusing right now, we have no authority and no role… Budgets are being allocated to road constructions but not to women development kinds of things.

Conversely, another local government KII said gender, disability, children and women's issues had been considered in all aspects of project planning and had even been incorporated in the five-year plan at the local/municipal level. Moreover, involvement of all stakeholders in DRM is a stated objective of the 2017 DRRM Act and the subsequent 2018 National DRRM Policy and Strategic DRRM Action Plan 2018–2030 take into account gender, persons with disabilities, children, older persons and other deprived and socially excluded groups. The document does not go into caste details, but six 'inclusion' groups are specified in the Constitution: Dalit, Adivasi Janajati, Khas Arya, Madhesi, Tharu and

Muslim; pregnant women are also prioritised. This implies that empowerment, inclusion, access, representation, effective participation and leadership development should take place for all DRM components: understanding disaster risk, investments on risk reduction, preparedness for emergency response, recovery, reconstruction and building back better. We heard that Gulariya municipality had followed the general guidelines of the national programme, which provides a monthly social security allowance; has allocated a budget for Dalits, Janajatis, women, children and persons with disabilities; and has provided an allowance for women giving birth in hospitals; however, the budget was not seen as satisfactory for the work that needs to be done around GESI.

In terms of women's leadership and participation in decision-making, the 2015 Constitution promotes women's participation in political structures: in the 2017 local elections, the Election Commission mandated that at least 40% of nominees be female; 40.96% of those elected were women (Samjhauta Nepal, 2018). Moreover, the Constitution requires that either the mayor or vice-mayor of a municipality be a woman, which has helped promote women's leadership at local level.

Nevertheless, it is not yet clear what this means in terms of voice and access to resources for women and marginalised groups. According to KIIs, creation of local gender focal points to complement local disaster focal points is envisaged, and each municipality will have a gender focal point to look into the GESI component and concerns. A GoN KII stated, '*Regarding gender and social inclusion, it is part of development, we cannot divide, it must be incorporated in all departments at all levels.*' However, despite increased women's representation, we heard that roles and responsibilities are often still very gendered, and behaviour between the different officials still needs to change. At the ward level, there is a team of five elected members consisting of one ward chair and four other members. The chair can be a woman or a man, and two of the remaining members must be women and two men, with one of the women from the Dalit community. This institutional arrangement aims to help promote the inclusion of different groups needs and priorities; however, as highlighted in the institutional resilience section above, it is often difficult for women and marginalised groups to access resources.

Some KIIs in Bardiya district identified progress towards women's rights (e.g. improved antenatal care, increased reporting of cases relating to domestic violence, local government making more efforts to include GESI issues in project planning and budget allocations), but it was generally acknowledged that resources for such actions were very limited. The proposed National Planning Commission 15th Plan is expected to identify marginalised groups as priorities, particularly women, with a focus on economic empowerment and elimination of GBV and child marriage; and interviewees from a range of organisations spoke of the importance of gender issues to their work.

GESI promotion activities reflect aspects that support the four components of resilience, and include training in income-generating activities (> 2,000 women's cooperatives established); development of building regulations; participation in local committees and designing local development programmes;

and employment-generating initiatives, such as road construction, and agricultural development programmes, which often target marginalised people (e.g. the Tarai Madhesi Prosperity Programme; Aarthiknews, 2018). Moreover, risk transfer and other risk financing mechanisms (considered 'very beneficial' for marginalised groups) are under discussion with international lending organisations including the World Bank and the Asian Development Bank. It is hoped the constitutional and administrative changes will lead to greater consideration of GESI in DRRM and will also encourage women to come forward to advocate for their needs, interests and priorities, and to engage in decision-making. This will not happen automatically; it is likely ongoing pressure will be required.

Overall, intersectional approaches to vulnerability reduction and resilience-building do not feature in current thinking and planning (it is '*new for us*', as one key informant put it), and KIIs were quick to recognise the complexity of intersectionality and the challenges in developing appropriate DRRM policies and practices to address it. Moreover, there is a need for more integrated programmes to build community resilience, and comprehensive integration of risk management into sector development plans and projects to ensure the continuity of systems and services (including education, health and employment) that promote people's wellbeing, despite environmental shocks and stresses (Diwakar et al., 2019).

3.3.2. Data collection/information

Data collection plays a key role in supporting inclusive DRM, and disaggregated data and analysis is important for intersectional approaches to vulnerability reduction and resilience, in order to understand different intersecting inequalities, and different people's needs, interests and capacities. It is also important to recognise that these will shift and change over time depending on the social, economic, political, cultural and environmental context within which people are living. There is a need for more disaggregated and baseline data about who is the most vulnerable and why, as well as on the impacts of disasters on people immediately after the event and in terms of the longer-term impacts on wellbeing and development (Diwakar et al., 2019).

In Nepal, the MoHA is responsible for enhancing disaster response and response capacity through the NEOC and DEOCs, using data and assessments to inform seasonal disaster preparedness plans and for integrating data into the Disaster Information Management System (DIMS). Disaster impact data was said to be still at a 'primitive phase', with a workshop to be held soon to reach consensus on impact data for the DIMS.[21] MoHA has a mandate for multi-hazard risk assessments, takes prime responsibility for coordinating assessments by other parts of government where necessary and seeks to fill gaps in assessment coverage. Apart from one national-level multi-hazard risk assessment completed in 2009, however, no comprehensive disaster risk assessment has been carried out. Similarly, municipal multi-hazard risk assessments have yet to be achieved, though we heard that these were a priority.

---

21   See MoHA portal for further information: http://drrportal.gov.np/

Vulnerability and Capacity Assessments (VCAs) are widely carried out at community level to identify those who might be at risk: LAPA committees, police, community leaders and other stakeholders are usually involved in this, coordinated by NRCS. There appears to be more emphasis on improved data on vulnerability and hazard exposure for risk assessment and disaster planning (particularly municipal risk profiles, VCAs, assessments generated by the LAPA process and impact data from the 2014 and 2017 floods). The district government used to carry out district VCAs once a year '*or when a new project comes in*'; while one government official highlighted that '*We have done very good mapping of all areas to identify vulnerable areas and also safe zones for where to go in flood.*'

We heard how municipal governments collected local-level information relating to socioeconomic factors such as gender, disability and marginalisation as part of municipality profile preparation and budget formulation. Vulnerability data is collected from local levels (ward offices of rural and urban municipalities, local Disaster Management Committees) and from local disaster and CCA plans. The mayor's office in Barbardiya municipality said they assessed risk (including flood hazard, exposure and vulnerability) through the presence of livelihood assets (physical, human, natural, economic and social resources) and level of awareness, education and adaptive capacity. This was based on the municipal profile, VCAs, the settlement and hazard ranking of the LAPA process, previous flood experiences and resource hazard mapping. Assessments and analysis have also been done on the data from the 2014/2017 flooding.

Nevertheless, capacity to collect data across the wide range of potential indicators appears to be relatively limited. There is little disaggregated data and baseline information available, as well as data on those affected by flood events. It was acknowledged that there was a capacity challenge in integrating such information into existing data systems. '*We have not enough disaggregated data, we cannot say exactly, but inclusion in different sectors is improving now*' (GoN). Better-quality, disaggregated data on vulnerability and the differential impacts disasters have on different social groups is needed if interventions are to reach the most vulnerable (an issue also highlighted by national-level KIIs, although efforts are being made to improve this).

Socioeconomic vulnerability appears to be more prominent in NGOs' thinking about risk assessment, and municipal officials recognised the support of local ward members and other organisations, such as Plan Nepal, the Women's Rehabilitation Centre (WOREC), the Tharu Women Upliftment Centre (TWUC) and NRCS, to help them identify and mobilise vulnerable groups. During floods, the municipal office works in close coordination with the government and (I)NGOs and calls emergency meetings to identify the most vulnerable so they can be assisted first. NGOs and NRCS work with different kinds of vulnerable groups, recognising that these have their own internal hierarchies and often wide variations in vulnerabilities. They also claim to have better knowledge of local communities and the vulnerable households within them, through VCAs, baseline surveys and supporting community groups. KIIs sometimes contrasted this targeted approach in the interviews with what was perceived to be the more

blanket approach of GoN bodies, which are mandated to provide equal access to services regardless of economic or social status.

3.2.3. Local capacity-building and approaches to build the resilience of households

The focus of DRM activity has shifted over time. When the LAPA committee formed, awareness-raising was a priority; subsequently, emphasis has shifted to implementing disaster preparedness measures. These measures are wide-ranging but fall into two main types: actions to reduce flood risk and cope with other hazards; and initiatives to improve income and livelihood security, particularly for women. Initiatives in the first category have included risk assessments, construction of gabions and culverts, cleaning drains, disaster management training, flood early warning and evacuation planning, building or extending emergency public shelters, provision of equipment for search and rescue (including boats and life jackets) and provision of first aid training and equipment.[22] In the second category, interventions include tree plantation, training in vegetable production and marketing, promotion of flood-resilient crop varieties and supplying seeds to replant after floods.

KIIs' optimism regarding the new policy developments was tempered by realism about the challenges involved in achieving impact. They recognised that economic and livelihood pressures on poor and marginalised people could be a challenge to their empowerment and their participation in DRM. MWCSW is one of the main ministries in this process; it plans to ensure more focus is given to parts of the country with low human development. Local governments are also expected to empower and engage with marginalised people, with employment and cash for work programmes identified as the main activities. An official stated that participation of women, disadvantaged Janajatis and ethnic categories should be defined by GoN from the ward level; another stated that they are *'hopeful that with lot of awareness programmes at the school and ward level and if people utilise knowledge received they will be able to protect themselves'*. Nevertheless, we heard how municipalities still lack sufficient funds to meet local needs and are dependent on central funds.

Considerable effort is going into building household and community capacities, with extensive community training and the creation of 50–60 task force groups at the community level. Local government is increasingly engaging with other organisations for DRM.[23] This is arguably a result of federalism as well as of local government adopting more progressive and holistic DRM approaches. The NRCS in Bardiya district aims to make *'communities themselves the first responder in disaster response… [we have to] motivate communities to work themselves utilising the local resources and materials'*, rather than relying on external projects and programmes, as there may not be donor funding, and these will not be sustainable in the long term. NRCS in collaboration with other local

---

22   We were told that a LAPA handbook had been written but were not able to obtain a copy.

23   In this case, Plan Nepal, WOREC, TWUC, Practical Action, the Anukulan project and local branches of NRCS.

NGOs, INGOs and the district government has conducted numerous trainings and awareness programmes in vulnerable areas, on saving property and assets, education, health, food, water, sanitation and hygiene, food security, rescue and so on. It has also provided torch lights, rubber boots and mobile applications for rescue; these are provided before a disaster occurs, with communication support provided during the disaster response stage.

Building the capacity of community organisations is a focus of NGO interventions, which is important for the promotion of intersectional approaches to vulnerability reduction and resilience-building. For example, NRCS has set up, trained and supported hundreds of women's self-help groups across the country. Local actors interviewed seek to continue these improvements, but they are aware of the considerable challenges they face. Flooding remains a significant and widespread hazard. Implementing structural mitigation measures such as gabions for 'river training' (which was seen as a priority in informal discussions with two riverine communities visited in preparation for the fieldwork) is extremely costly and usually requires external sources of finance. This is a considerable challenge for many local actors aiming to build household resilience to flooding. Local institutions have limited capacity and there is a widely acknowledged need for much more training, awareness-raising and leadership development. Moreover, as one local official recognised:

> *Many organisations work for Dalits, disadvantaged Janajatis. But it is not that there should be a disaggregation between Dalits, Janajatis. All castes/ethnicities should be treated equally while working in disaster/risks. It happens to all when it happens.*

4. KENYA CASE STUDY

Image: Oxfam
East Africa

4.1. Hazard, vulnerability and disaster management context

4.1.1. Hazard and vulnerability context (Kenya)

Kenya's disaster profile is dominated by droughts, fire, floods, landslides, lightning/thunderstorms, wild fires, strong winds, terrorism, technological accidents, diseases and epidemics that disrupt people's livelihoods, destroy infrastructure, divert planned use of resources, interrupt economic activities and prevent or delay development (GOK, 2009). In the recent past, these hazards have increased in frequency, severity and duration. Extreme climatic events have posed a significant risk to some regions and have contributed to making Kenya one of the most disaster-prone countries in the world (MOSSP, n.d.). Observed mean annual temperatures have increased by 1.0°C since 1960, or an average rate of 0.21°C per decade (McSweeney et al., 2009). Greater rainfall has been observed during the short rains of October to December (GOK, 2010a), and the long rains of March to April have become increasingly unreliable in locations such as Eastern province (Awuor, 2009). Drought is the most prevalent natural hazard in Kenya, affecting mainly Eastern, North Eastern, parts of Rift Valley and Coast provinces.

Historically, these extreme climatic events have caused significant loss of life and adversely affected the national economy. Droughts have affected the most people and had the greatest economic impact (UNDP 2012). Between 1975 and 2011 there were at least 10 serious droughts, three of which have been in the past seven years (2005–2006, 2008–2009 and 2010–2011). The number of people affected by repeated drought emergencies appears to be rising. According to the inter-agency Kenya Food Security Steering Group, an estimated 4.5 million people were affected in 2011, 3.8 million in arid and semi-arid lands (ASALs) and 700,000 in non-ASAL areas (GOK, 2013). The 2008–2011 drought cost Kenya $12.1 billion in damages and losses combined and slowed GDP by an average of 2.8% per annum (GOK, 2013). These droughts have resulted in immense losses in resources and assets and affected the livelihoods of many who depend on these, particularly pastoralists, which is the prevalent livelihood group in the ASALs of Kenya.

Floods seasonally affect various parts of the country, especially along the flood plains in the Lake Victoria basin and in Tana River, while landslides are experienced during the long rainy season running from March to May, especially in Murang'a district and areas surrounding the Mount Kenya region. The country's worst floods were recorded in 1961–1962 and 1997–1998, the latter ones, associated with the El Niño phenomenon, being the most intense, widespread and severe (GOK, 2009). In 2018, flooding caused widespread damage, approximately 150 people died and a further 310,000 were displaced across 40 counties (GOK, 2018).

Other climate-related hazards in Kenya include forest fires and landslides, which mostly affect the highland regions (UNDP, n.d.). Climate change is expected to be an increasingly key contributor to morbidity, mortality and poverty – particularly among populations that depend on climate-sensitive natural resources, experience high poverty and have insufficient access to the social, environmental and economic resources needed to adapt (O'Brien et al., 2008).

According to 2009 UN World Population Prospects projections, Kenya's population is projected to grow by around 1 million per year – 3,000 people every day – over the next 40 years and will reach about 85 million by 2050.

4.1.2. Disaster risk management policy and institutions

The Government of Kenya (GOK) has acknowledged its vulnerability to climate risks, including climate change, in Vision 2030 and other policy documents. In recent years, it has also acted to strengthen its capacity to manage climate change and natural hazards through establishing institutional structures to support the integration of climate change into policy and programming, and to promote coordinated action among ministries. The structures have been informed by global and regional commitments and obligations, such as the UNFCCC, Africa's Climate Change Strategy (2011) and East Africa's Climate Change Policy, Strategy and Master Plan (2011).

The Ministry of State for Special Programmes (MOSSP), the National Disaster Operations Centre, the Cabinet's National Disaster Management Executive Committee and the Kenya National Platform on DRR (KNPDRR) lead on DRM. Specific bodies have also been established to manage drought, including the Kenya Food Security Steering Group and NDMA. A number of policies and frameworks have been put in place: the Ending Drought Emergency Framework, National Climate Change Response Strategy (NCCRS) (2010), National Climate Change Action Plan (NCCAP) 2013–2017, National Climate Action Plan (NCCAP) II 2018–2022, DRR Strategy for Kenya 2006–2016 and National Disaster Management Policy, among others that guide current DRM efforts. Kenya has also established a Drought Emergency Fund to support counties in times of crisis.

Overall, DRM efforts in Kenya remain largely focused on reactive, short-term emergency or relief responses. Poor coordination among institutions has slowed responses to disasters and increased associated costs (Development Initiatives, 2017). Government bodies established to coordinate Kenya's response to climate change include the National Climate Change Activities Coordinating Committee, the Environment and Climate Change Coordination Unit and the Climate Change Secretariat, which is housed within the Ministry of the Environment and Forestry (MEF). While MEF has lead responsibility for coordinating and supervising climate change efforts across government, numerous other ministries and parastatal organisations are also actively engaged in climate change actions.

The country's 2010 NCCRS provides guidance on how the ambitious goals set forward in Vision 2030 could be achieved through 'climate-smart' development. The first NCCAP 2013–2017 was developed with the aim of implementing the NCCRS. The NCCAP II 2018–2022 provides a framework for Kenya to deliver on its commitments under the UNFCCC Paris Agreement. NCCAP II guides the climate actions of the national and county governments, the private sector, civil society and other actors as Kenya transitions on a low-carbon, climate-resilient development pathway. It also provides a basis for strengthening and focusing nationwide action towards CCA and mitigation, equipping the country to take decisive action in responding to climate change challenges.

To strengthen institutional capacity for integrating CCA into the national development planning process, the Ministry of Planning has developed the Threshold 21 Model (T21). This planning tool integrates analysis of the risks and impacts of climate change across the major sectors in the economy, society and environment, in order to inform coherent national development policies that encourage sustainable development, poverty eradication and increased wellbeing of vulnerable groups, especially women and children, within the context of Vision 2030 (Parry et al., 2013). In addition, Kenya has begun to integrate climate change considerations into key sectoral policies, including the Agriculture Sector Development Strategy 2010–2020 and the National Policy for the Sustainable Development of ASALs of Kenya.

In the effort to reduce vulnerabilities to risks, GOK has formulated the National Policy on Disaster Management to institutionalise mechanisms for addressing disasters. This emphasises preparedness on the part of GOK, communities and other stakeholders in DRR activities. It aims to establish and strengthen disaster

management institutions, partnerships, networking and mainstreaming DRR in the development process.

The National Policy on Disaster Management encompasses a full continuum from preparedness to relief and rehabilitation, mitigation and prevention. It also aims to increase and sustain the resilience of vulnerable communities to hazards through diversification of their livelihoods and coping mechanisms. This entails a shift from the short-term relief responses to development. It will go a long way towards preserving life and minimising suffering by providing sufficient and timely early warning information on potential hazards that may result in disasters. It also aims to alleviate suffering by providing timely and appropriate response mechanisms for disaster victims (GOK, 2013). The policy provides overarching frameworks for decision-making and coordination across disaster management sectors and actors, including government ministries, civil society, international organisations and the private sector. Implementation of the policy will lead Kenya towards achieving the following key ambitions, which support overall development within the country:

- prevention of disasters and their impacts on families, infrastructure and the environment

- resilience of families and communities, reducing vulnerability and increasing their ability to withstand and minimise the effects of disasters and complex emergencies, including adaptation to climate change through increased preparedness

- response to disasters and complex emergencies that is fast, well-coordinated, effective and appropriate

- recovery from disasters and complex emergencies that is timely, leaving communities and families in a better position to withstand future hazards.

While these are positive steps, some challenges remain. Notably, current policy action related to CCA and DRM has been undertaken largely at the national level; less progress has been made towards building response capacity at the sub-national levels. For example, trained disaster management officers are needed at the county level (KNPDRR, 2011). Moreover, the need to strengthen vertical action and coordination is of greater importance, given provisions in Kenya's 2010 Constitution to devolve responsibility to county level, bringing decision-making closer to the people and making governments more accountable for provision of services (World Bank, 2011). For more information on Kenya's economic, social, political and constitutional context, see Annex 3.

4.1.3. Wajir county

Wajir county, where this project's fieldwork took place, is one of the driest counties in Kenya. Dry spells, prolonged drought, heat stress, shifts in seasons, moisture stress and occasional floods are hazards that affect agricultural productivity and food security in the county. The County Integrated Development Plan (CIDP) 2013–2017 (Wajir County, 2013) describes the landscape as a featureless plain covering an area of 56,685.9 km² and bordering Somalia

to the east and Ethiopia to the north, Mandera county to the north east, Marsabit county to the west and Garissa county to the south. Administratively, the county comprises eight sub-counties: Wajir East, Tarbaj, Wajir West, Eldas, Wajir North, Buna, Habaswein and Wajir South (see Figure 7).

Figure 7. Map of Wajir county, Kenya

Wajir County

KENYA

WAJIR NORTH

Bute
Gurar
BUTE
BUTE
GURAR
BATALU

Buna
BUNA

WAJIR EAST

MANSA
Mansa
Kotulo

ELDAS
TARBAJ

ARBAJAHAN
Garse Qoftu
Griftu
KOTULO
Khorof-Harar

Arbajahan

KHOROF-HARAR

Key

Wajir
Wajir-Bor
WARIR-BOR

GRIFTU

WAJIR WEST

HADADO
Hadado

KULAALEY

DIFF

ADEMSAJIDA

LAGBOGOL SOUTH
Machesa
Diff

Habaswein

HABASWEIN

SABULI

Sabuli

WAJIR SOUTH

Key

- Area without political representation
- Area with political representation
- Sub-country border
- Ward border
- River or stream
- Urban centres with population of more than 2,000 people
- Main town

Density per km²

| 6 | 13 | 16 | 17 |

Source: Mercy Corps (2019 forthcoming).
Note: the labelled wards were selected sites for the study. However, Wajir County has a number of other wards, both with and without political representation, that are not labelled here.

The county has two ecological zones: semi-arid near the high ground
and arid in the lower plains. It falls in Ecological Zone V–VI. Zone V has
average annual rainfall of 300–600 mm and low cover of trees, grass and
shrubs. Zone VI has average annual rainfall of 200–400 mm. The higher
area of Bute and Gurar receives 500–700 mm annually. The rains are erratic
and unreliable and cannot support sustainable or productive agriculture.
There is a great danger of desertification, to which overgrazing and
sporadic settlement contribute; this greatly affects the key value chain
and livelihood of the community and the ustainability of pastoralism
and nomadism in the county (Wanjuhi, 2016).

Wajir experiences annual average relative humidity of 61.8%, which ranges
from 56% in February to 68% in June. It has an average temperature of 27.9°C.
The range of average monthly temperatures is 3.5°C. The warmest months are
February and March, with an average of 36°C; the coolest months are June,
July, August and September with an average low of 21°C.

Severe droughts recorded in the county include those of 1984–1985, 1991–1992,
1999–2000, 2005–2006, 2009 and 2011. In the event of these droughts, pastoralists
experience substantial livestock losses. An example is the 2011 drought, when
pastoralists lost up to 40–70% of their livestock (Huho and Mugalavai, 2010).
There is the highly seasonal Ewaso Nyiro River and Lake Yahud, and the
county is prone to seasonal flooding during the rainy season, which makes
roads impassable. Other hazards experienced include flash floods, livestock
and human diseases (Wajir County, 2013).

Several of Kenya's arid and semi-arid counties have already passed the
1.5°C average warming threshold, with 12 more counties, including Wajir,
projected to follow by 2050. By 2070, maximum temperature increases in
all counties are expected to exceed 1.5°C, and in Wajir temperature increases
will exceed 2°C (Said et al., forthcoming). Models of future climate projections
show that Wajir will remain highly susceptible to drought and high temperatures.
These extreme weather events have attracted interventions from various
stakeholders, both government and NGOs, which include the provision
of food relief and social protection measures such as cash transfers.

The main livestock bred in Wajir county (mostly in Wajir town) are cattle,
camel, goats, sheep, donkeys and poultry. Beef, milk, eggs and mutton are
the main livestock products, with milk and meat annual production estimated
at 3,875,940 litres and 191,100 kg, respectively. Available data shows that the
county has a food poverty rate of 72% and the majority of its inhabitants
depend primarily on relief food because the acreage under food and cash
crops is negligible (GOK, 2013).

Environmental degradation, land use change and demographic shifts have
resulted in reduced access to grazing land and water resources, reducing
people's capacities to cope with increasing climate variability and natural
hazards. Policies of sedentarisation have led to new settlements, and loss
of mobility and natural resources has led to overgrazing. Continued charcoal-
burning and tree-cutting cause further environmental degradation. Other

effects include loss of biodiversity, desertification, human-to-human conflicts, human-to-wildlife conflicts and floods during the rains.

Support from several organisations, such as the National Irrigation Board, the Kenya Red Cross Society and World Vision has promoted crop production in areas such as Eldas and Wajir East through the introduction of greenhouses, shade nets and drip irrigation technologies. The main food crops grown include drought-resilient maize, sorghum and watermelon, occupying approximately 700 ha, 800 ha and 200 ha, respectively. However, most farm products consumed within the county on a substantial scale are imports from neighbouring counties. These include potatoes, tomatoes, carrots, cabbages, avocado and pawpaw (MoALF, 2017).

The county population comprises mostly the Somali people, who identify themselves through clans such as the Ajuuran, Degodia and Ogaden Pastoral Somali Clans, which are predominantly Muslim. Clannism is a factor to consider in development planning and distribution of resources, given the role clans play in communal management of resources, peace and security. Most conflicts are related to sharing of resources, especially water and pasture for livestock. Some cultural practices have led to low development. These include early and forced marriage of girls, thus denying them opportunities to advance in education, and high levels of female genital mutilation, which increases their exposure to risks such as HIV/AIDS infection.

All land in the county is held in trust by the government, so the populace holds no title deeds. This limits communities' capacity to sustainably develop their land. Land adjudication, surveying and issuing of title deeds need to be addressed urgently. The county has a large number of poor people, in both urban and rural areas. The population living in absolute poverty is estimated to be 84% (Wajir County, 2013).

Elders picking and endorsing candidates has become a trend in North Eastern province, where Wajir county is located – what is now called 'negotiated democracy'. Most elected politicians have been endorsed by elders from majority clans. Because of cultural barriers, women are rarely endorsed to take political leadership positions (Carrier and Kochore, 2014).

4.2. Findings for Kenya

This section presents the findings from the survey, which are first explored as a whole through the differences between women and men and then through a cross-analysis between women and men from different social groups. We then look at the four components of resilience, drawing on the survey data and the KIIs and FGDs. Where possible, we include some official data from the

Population and Housing Census of Kenya (2009)[24] and the County Integrated Development Plan (2013–2017). Finally, we use the data gathered through the KIIs and FGDs to explore intersectional approaches to vulnerability reduction and resilience-building, looking at institutional structures, data collection and local capacity-building and approaches to build resilience at the household level.

4.2.1. Summary of findings from the survey across the four components for Kenya

A summary of the findings from the resilience index for men and women is outlined below:

- In Kenya, comparing women and men reveals no statistical difference in the composite resilience index score, or on any of the four resilience components, as Figure 8 indicates.

- Resilience capacity is mainly supported by the economic and institutional dimensions. The infrastructure component is lower than the other components for all groups. Economic performance is high in the Kenya sample but lack of access to infrastructure appears to be an important issue.

Figure 8. Score for the four components of the resilience index in Kenya, by sex
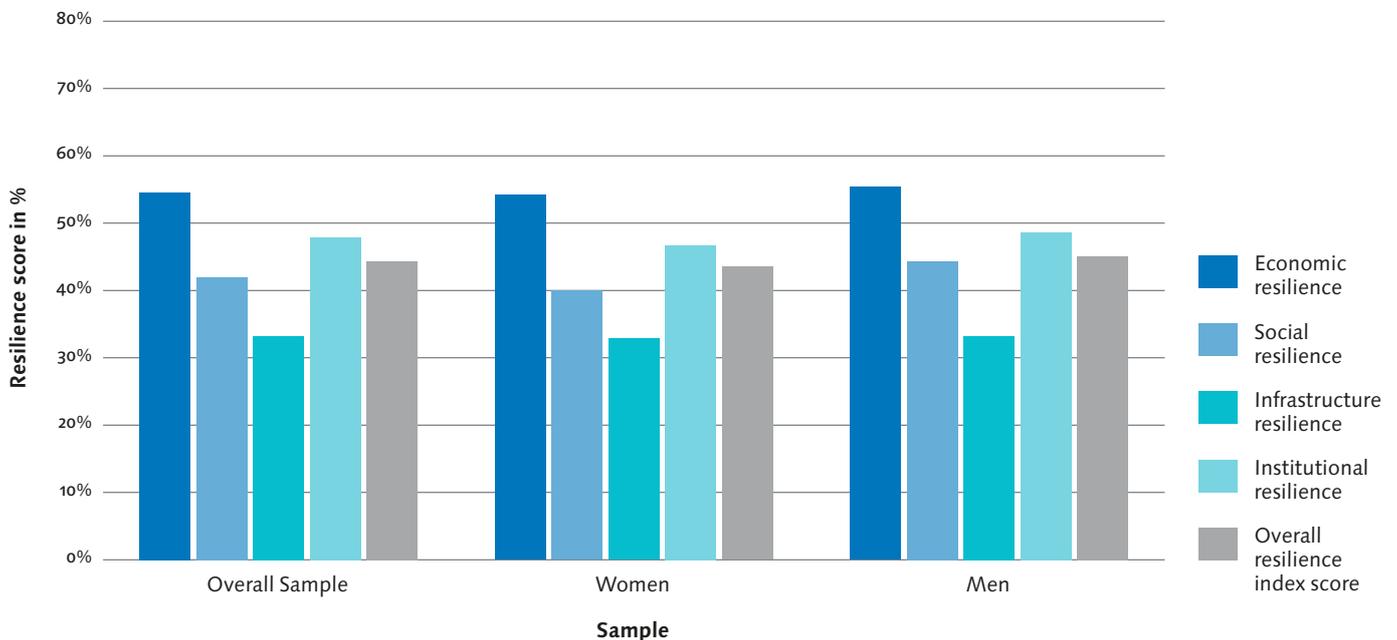
When we compare men and women taking into account the different social groups (those with and those without political representation), the results show:

- **There are no statistically significant differences in average scores between women and men in the different social groups (see Figure 9).**

- **Furthermore, no statistically significant difference could be identified between the two social groups irrespective of sex.**

- **The main difference between women from the group without political representation and women from the group with political representation is in the social component. However, such a difference is not statistically significant and hence should be taken with caution.**

- **Within the social component, the difference between women from the group without political representation and women with political representation is explained mainly by their access to education and information (i.e. newspapers) and by the migration and food security dimensions.**

**Figure 9. Score for the four components of the resilience index in Kenya, by social group**
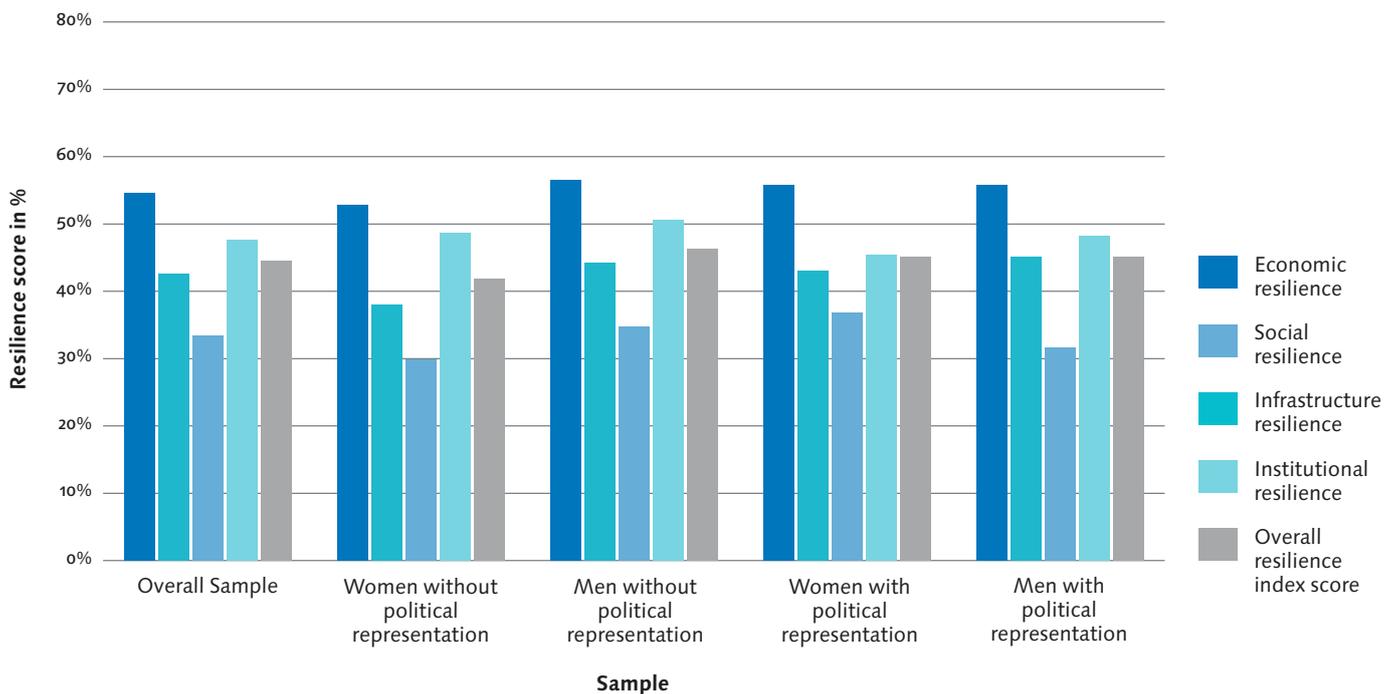
The Tables in Annex 1.2 explore in more detail the differences between the four social groups (women from the group without political representation, men from the group without political representation, women from the group with political representation, men from the group with political representation).

4.2.2. Economic resilience

- **59% of respondents in the survey felt that economic factors were an important consideration in their resilience as they reported having experienced increased risk as a result of poor natural resource management.**

- **KIIs and FGDs linked low adaptive capacity to access to and control of resources. Factors like gender inequalities, lack of diversification of livelihood options, limited political representation, overreliance on natural resources and lack of financial 'muscle' influence access to and control of resources.**

Agriculture (mainly livestock-keeping) accounts for 85% of Wajir county household income. Nomadic pastoralism defines the lifestyle of most of the county's inhabitants. Access to economic resources varies by marital status; households headed by single or divorced mothers have fewer economic resources, land and capital. Most women in a 'typical' household are seen to be housewives, while the men provide for the family. To empower women economically, the government has established the Women Enterprise Fund for groups at the grassroots (Wajir County, 2013).

One possible reason the survey did not find any significant differences between women and men on economic resilience could be that most of the women who took part belonged to village savings and loans groups/table banking where they are able to access money. When asked if they could access loans, women scored significantly higher than men. Men mostly reported that they would not be able to access a loan if they needed one, whereas 10% of women thought they could. The results might have been different if the sample size had been larger and if it had reached the most remote women, who have no or little access to formal education. According to the CIDP 2018–2022, Wajir county has a total of 70 self-help groups, 50 CBOs, 700 women's groups, 900 youth groups and 146 farmers' groups (County Government of Wajir, 2018); most of these groups are engaged in income-generating activities. The rate of unemployment in the county is 63%; the main causes are 'cyclic droughts, insecurity, high illiteracy and inefficient marketing systems for county products' (Ibid., 2018: 33).

Although the survey shows no significant differences between women and men in terms of economic resilience, there was common agreement across the KIIs and FGDs that men had advantage in access to and control of resources. They generally identified issues around gender inequalities, which are seen as a major constraint to women, as the main reason. Most KIIs and FGDs felt women did not enjoy equal rights to inheritance of assets like land and are thus denied economic power such as use of land as collateral for loans.

The survey did not find significant differences between women and men with regards to decision-making on the use of personal or household income. This could be because women can save their own money through their savings group. Nonetheless, most FGDs and KIIs felt that, at household level, women could only make decisions related to their domestic chores – what to cook, where to fetch

water and firewood – not on finances, such as whether to sell animals for school fees or other investment decisions.

Women's domestic chores are time-consuming and unpaid and, in resource-poor areas, women have less time to earn an income, as they spend longer securing resources such as food, drinking water and fuel. Moreover, drought, saline intrusion into water sources and erratic rainfall force women to work harder and walk greater distances to secure natural resources. These gender inequalities deny women the opportunity to access and secure a livelihood, thereby exacerbating their vulnerability and undermining their capacity to cope with natural hazard-related disasters.

In the survey, more men than women stated that they had difficulty accessing natural resources. This may reflect gender roles in natural resource management, where men are responsible for looking for pasture and water for animals. Nonetheless, there was recognition from a KII that *'women are better managers, if given [the] opportunity to control resources, they can venture into sustainable way[s] of withstanding shocks and stresses' (*male respondent, Department of the Environment and Forestry).

Both KIIs and FGDs felt that isolated women, expecting or breastfeeding mothers and female-headed households were even more vulnerable to the impacts of drought because they rely on milk and meat for food and income, as this is the only resource men allow their wives to access (they do not own assets). Nevertheless, men were also identified as vulnerable because they walk long distances in search of pasture and water and can be exposed to conflict as a result of resource scarcity. Both KIIs and FGDs further suggested that physical differences between women and men were important. In particular, differences in strength and ability to walk long distances (especially for persons with disabilities, children and older persons) were seen as important vulnerability factors affecting mobility and therefore access to water and pasture.

Both FGDs and KIIs recognised poverty as a significant factor, because of limitations on resources to prevent, mitigate or recover from shocks and hazards. Both KIIs and FGDs suggested minority groups (groups that are not politically represented) have limited access to resources and opportunities. This increases their vulnerability to the effects of drought since their purchasing power is limited, and they cannot invest in sustainable ventures to help them absorb shocks. Both KIIs and FGD revealed that limited livelihood options also increase risk: pastoralists who rely entirely on livestock suffer losses during severe drought and are less able to adapt to environmental stresses and shocks.

Groups that are politically represented are mostly financially stable because they live close to resources such as water pans and dams and can access multiple resources – for example contracts/tenders from the county, especially on food distribution, relief and support services, which can include cash vouchers, food aid, bursaries for education and employment opportunities. However, findings suggest that a number of them still struggle to cope during the drought cycle and have to migrate in search of pasture for their animals.

Overreliance on natural resources such as water and pasture has led to competition and increased conflicts between and within communities. Of the sample, 44% replied yes to the question, 'Is there competition around natural resources that affects your livelihood?' Clan loyalties and politics play a significant role in driving conflict and insecurity, further reducing options for some households to access key resources during dry periods. This makes them more vulnerable to future natural hazards, including those influenced by climate change and variability. KIIs also revealed that illegal charcoal burning is practised as an alternative income-generating venture, which destroys indigenous trees, degrading the environment and natural resources.

Both KIIs and FGDs described community coping strategies to reduce disaster impacts. Herd-splitting during times of drought involves young men taking stronger livestock longer distances. It also entails leaving behind lactating herds and young livestock, which are then fed with commercial feeds, which is expensive but helps keep them alive. Some communities practise rangeland management of pastures, whereby they are allowed to graze only on a rotational basis to allow regeneration, which helps ensure the sustainability of the livelihood system. Few households destock weak animals during drought as a coping mechanism; if they do, low prices mean they only sell a few animals. The income derived from selling this livestock tends to be spent on commercial feeds, vaccinations or water for the remaining livestock, and food and school fees for the household.

A number of INGOs and NGOs have trained community members on diversification of livelihood options, including through table banking, linkages with microfinance institutions to access loans and venturing into small trade and markets for livestock products like camel milk, among others. To avoid overreliance on livestock, a few households in Wajir North, especially in the fairly wet regions, are practising irrigation farming and kitchen gardening of drought-resistant crops for survival during drought. In these cases, they sell the surplus to cater for other emerging needs, like school fees and buying water and food. However, social norms and gender discrimination are seen to be a challenge for women trying to diversify their livelihoods and start new businesses:

> If you start a small business as a woman, you will be looked down upon by others who feel you have abandoned your children and your house and you spent most of the time away in the shop, this make women shy away from engaging in small trade (female FGD respondent, Wajir South).

4.2.3. Social resilience

- **Women from the group without political representation reported having problems of food insecurity. Only 18% of women (compared to 24% of men) from this group thought their diet was balanced enough, and only 28% of women (compared to 38% of men) from this group said it had improved in the previous five years.**

- **Nonetheless, the difference between women and men in average social resilience is not statistically significant.**

Wajir county has a population growth rate of 3.22%, which is higher than the national rate of 2.9%, attributable to high levels of illiteracy (according to the CIDP 2018–2022, 76.4% of the county are illiterate (County Government of Wajir, 2018)) and strong religious and cultural beliefs that support polygamy. The survey showed that in the group without political representation, only 10% of women reported having access to a secondary school, compared to 34% of men. This is a result of early marriage, female genital mutilation and exploitation of women, among other negative practices.

When asked the question, 'Who is the most vulnerable to drought', both FGDs and KIIs suggested women were more vulnerable to the effects of drought, given their multiple roles as care-givers and as economic actors, especially when they are left alone when men move in search of pasture and water. Other groups identified as vulnerable include children, young boys and girls, the elderly/aged and persons with disabilities.

Findings from both KIIs and FGDs suggest gender inequalities remain a significant factor affecting the capacity of the community to prepare for, cope with and respond to natural hazards, including those influenced by climate change and variability. They also emphasise that domestic responsibilities burden women more than men; women have less time to earn an income, access education or training or participate in decision-making processes. Moreover, women often have to walk long distances in search of water and firewood, exposing them to the possibility of GBV and rape. We also heard that instances of conflict and GBV increase during times of drought, due to high expectations for men to provide food, when resources are scarce.

> *During droughts, we barely have anything to hold onto. We rely on social connections, where neighbours and family members support each other for survival* (female respondent, ward FGD, without political representation).

> *We have received a lot of reports on increased gender-based violence during extreme drought, especially physical violence and rape* (female respondent, Wajir Gender Technical Working Group).

Four FGDs and seven KIIs felt that GBV was an issue that mostly affected women, especially when they walk long distances to fetch water or firewood. On average, 15% of the sample reported that domestic violence was a problem in their village. In the group without representation, 13% of women revealed that this was a problem compared to 10% of men. These low values could be because women were shy to reveal the truth in front of enumerators.

In response to survey questions, 51% of the sample believed migration increased household income and 47% mentioned that a member of their household had migrated as a livelihood strategy. Women reported having fewer opportunities to migrate after an emergency. In the group without political representation, only 27% of women reported access to migration opportunities, whereas 55% of men said they would be ready to migrate after an emergency. Several KIIs and FGDs raised the issue of male migration as a challenge for the female-headed households left behind, and as a contributing factor to their vulnerability.

Women have a burden to take care of the family, livestock and elderly while men migrate in search for water and pasture, this made it harder to cope with the effects of climate change (male NGO respondent).

Women are left to take care of their families without resources exposing them to violence. They are not allowed to make simple decisions like selling weak animals that are sometimes left behind when their men have migrated with stronger animals in search of water and pasture. Instead, they are forced to look for pasture and water to feed the weak animals increasing their already overburdening chores. A woman has to walk for long distances in search of water and food for the families with no one to protect them and sometimes they are raped or forced to 'sell their bodies' as payment to access resources for the sake of their families (male respondent, Wajir Gender Technical Working Group).

Where male family members have migrated in search of pasture and water (and in some instances where they have lost their animals because of a lack of resources), they often migrate to urban areas for work, leaving female-headed households behind. FGDs also revealed that some men who migrate in search of pasture and water often remarry and settle in the new environment, increasing stress and psychological trauma for the women left behind.

High levels of malnutrition in Wajir have been precipitated by several factors, including poor infant and young child feeding practices, poor dietary diversity, lack of adequate water together with poor sanitation and hygiene, as well as cultural practices that have a negative effect on the uptake of health and nutrition services (Wajir County, 2013). Moreover, only 22% of women compared to 59% of men have received any education (KNBS, 2009).

During drought, young girls are often forced to drop out of school, with parents giving priority to boys to continue with their education, as they cannot afford school fees for both. Even though the enrolment rate is low in general in this area, 34% of men from the group without political representation reported having access to formal secondary education, compared with only 10% of women from the same social group. The survey also reveals that informal education (e.g. religious teaching) plays a key role for women, especially those who do not belong to a disadvantaged social group (97% have received education through the informal system compared to 87% of men from the same social group). This further marginalises more women than men, and exposes them to different types of vulnerability, including early marriage. Evidence from the FGDs also reveals that child marriage is practised in these communities.

During drought, due to little resources, we are forced as parents to ask our girls to drop out of school because we cannot afford to pay school fees for every child. Boys are always given priority (female FGD respondent, Wajir South).

There is a need for greater action to be taken to fully address both socioeconomic and cultural factors affecting education with special interest in girl-child education.

From KIIs and FGDs there was some acknowledgement that levels of women's empowerment varied between different social groups. For instance, women from groups with political representation were seen to have higher self-esteem and confidence and to be able to express themselves better than women without political representation, which may be due to improved access to education and employment opportunities. For the most part, KII and FGD participants highlighted social tensions between different ethnic groups and power relations in society linked to political representation and access to resources.

Interviews with KIIs and FGDs revealed that Wajir has a patriarchal social system in which men hold primary power and dominate in roles of political leadership, moral authority, social privilege and control of property. Six out of seven FGDs strongly felt that the majority of women living in rural areas/villages were not able to make decisions on their own. Moreover, many informants spoke of the physical difference between women and men, the elderly and persons with disabilities, and the fact that men could use their masculinity to 'fight' for resources, for example food relief.

On average, 59% of respondents reported being aware of the existence of a social net programme and being part of such a programme. In the group without political representation, these percentages were 67% among women and 43% among men. This may be because these programmes target mainly women. According to the CIDP 2018–2022, the rate of unemployment in the county is 63% (County Government of Wajir, 2018). The causes of unemployment are 'cyclic droughts, insecurity, high illiteracy and inefficient marketing systems for county products' (Ibid, 2018: 33).

Exploring the social component of resilience in more detail (see Annex 1.2) reveals that the difference between women from the group without political representation and women from the other social group is explained mainly by their access to education and information, as well as by the food security dimension. For example, in the former group, only 7% of women (24% of men) reported reading newspapers. Moroever, women from the social group without political representation reported having problems of food security. 18% of women (24% of men) from this social group thought their diet was balanced enough and only 28% of women (38% of men) said it had improved in the past five years.

National key informants' responses to questions about vulnerability to drought were quite similar to those of local stakeholders, tending to focus on political inequalities, gender and social factors. These included women's family obligations – such as taking care of people, livestock, older persons and children – which make it difficult and burdensome for them to cope with limited resources. GOK KIIs focused more on lack of funding/financial resources for proper investments in long-term and sustainable resilience initiatives. KIIs with NGOs were more aware of underlying factors and put more emphasis on marginalisation and exclusion arising from cultural, economic and social constraints.

4.2.4. Infrastructure resilience

- There is no difference in average infrastructure resilience between women and men.[25]

- There are a few differences between social groups. For example, 14%–18% of respondents (variation depending on sex) from the group without political representation reported having access to good quality roads compared to 24%–43% of respondents from the other social group.

- Similar differences are found for access to electricity (10%–17% from the group without political representation; 47%–55% from the other social group), environmentally friendly inputs and technologies (10%–17% from the group without political representation; 19%–50% from the other social group) and safe toilets (27%–48% from the group without political representation; 60%–74% from the other social group).

KIIs and FGDs revealed that poor or damaged infrastructure (e.g. roads and bridges) hindered relief distribution during drought in Wajir. Moreover, poor road and communications infrastructure was identified as an obstacle to accurate data collection on the most vulnerable people in remote areas for relief distribution, and even to buyers' access to livestock products. According to the CIDP 2018–2022, the county has a total of 28 km of tarmac roads and 440 km of gravelled roads, out of a 5,280 km road network (County Government of Wajir, 2018). The rest of the roads are earthen and unclassified. The county lacks key infrastructure like a rail network, a major bus system and lorry parks. The poor road network inhibits connectivity for inter- and cross-county collaboration.

The 2009 Population and Housing Census reveals that 95.6% of households live in their own house. The Somali traditional houses, which are temporary, constitute 75.9% of the houses in the county. Dwellings with an earth floor constitute 91.5%. Walled houses are found in Wajir town, Bute, Habaswein, Griftu and the divisional headquarters and in a few settlements in rural areas. Approximately 75% of the population do not enjoy access to 'adequate housing and reasonable standards of sanitation' as stipulated in Article 43 (b) of the Constitution.

Each clan wants its own members in political leadership positions in order to have more access to resources, opportunities and government benefits. For instance, from the survey, we see that only 14%–18% of respondents in the survey (variation depending on sex) from the group without political representation reported having access to good quality roads compared to 24%–43% of those from the other group. Similar differences are found for access to electricity (10%–17% from the group without political representation; 47%–55% from the other group), environmentally friendly inputs and technologies (10%–17% from the group without political representation;

---

25   Differences in hard infrastructure are driven mostly by gaps between different villages, and therefore those politically represented or not, as opposed to between women and men.

19%–50% from the other group) and safe toilets (27%–48% from the group without political representation; 60%/74% from the other group).

In Wajir, living close to water sources was identified as important and was linked to political representation and control or allocation of water resources. For example, Habaswein, Bute and Hadado have electricity and piped water, and more than one source of water (pans, boreholes). Hadado ward has a mega dam with nine water kiosks connecting water to villages, solar street lights, better communications infrastructure operating all major mobile networks (Safaricom, Airtel and Telkom), a power station (which provides electricity), microfinance institutions, drip irrigation, both private and public health services, cyber cafes, computer colleges, social amenities and reliable public transport (enabling people to access markets for their produce). These communities also have an advantage over other areas because they have seen heavy investments by NGOs over decades.

Middlemen keep prices low for the pastoralists and make the process of stocking or destocking in advance of drought more difficult. Prices rise and fall depending on the season, and change depending on the weight of the livestock. The Wajir county government has constructed market stalls in Habaswein, Bute and Hadado wards, which are not in use because of low buying prices. Transporting livestock to major towns like Nairobi, with meat and milk processing factories, is expensive because of the poor road network, which increases the journey time. Most respondents said it was difficult to leave the village by road throughout the year. As a result, middlemen from larger towns and cities are deterred from purchasing livestock in Wajir, which means pastoralists are even more vulnerable to drought, since they cannot access better markets to receive an income.

> Our roads are bad, our mobile network is poor, we rarely have reliable public transport, this has made it very difficult to transport animals to major towns and cities for sale at better prices. Instead of selling our animals at low prices to embrace destocking, we prefer to migrate and look for pastures and water (male FGD respondent, without political representation).

> During rainy season, our area is impassable, we also have poor mobile network thus no communication. During hazards like floods or drought, it's impossible for aid to reach the most deserving ones because the roads are impassable and furthermore it's difficult to locate where people have migrated to (ward administrator, without political representation).

Both KIIs and FGDs revealed that new permanent settlements were being established close to manmade water points in wet season grazing areas, constructed by government or NGOs. More than 30 settlements have been established in the past 20 years, depleting available pastures and threatening to permanently degrade sustainable pasture growth through overuse. Systems in which wet and dry season grazing areas were carefully managed have been abandoned, and the resulting overgrazing has further reduced pasture availability. Expansion of settlements has increased the vulnerability of community members.

We have seen over 30 new settlements established in the last 20 years with the hope that they can politically be represented especially during elections which is destroying the grazing land and increasing unnecessary competition over resources. There is need to sensitise leaders on the importance of reducing settlements and managing the environment to increase resilience to drought (male NGO staff, Wajir).

EWS are vital elements in the country's DRM systems for slow-onset (drought) disasters. Both FGDs and KIIs revealed that EWS messages were not reliable (sometimes late and with unclear advisory messages) for communities. KIIs at county level revealed that early warning climate information is disseminated through Wajir Community Radio and through Ward Adaptation Committees by various NGOs, including Mercy Corps' BRACED project. County-based actors like NDMA, relevant county and national government departments and humanitarian NGOs use the information to plan and respond to emergencies. However, only 5% of people interviewed in the survey said they trusted these warnings. The main challenge has been adequate funding for timely effective response strategies. However, FGDs at village level revealed that there was no reliable EWS to influence decisions about whether to sell livestock (i.e. in advance of coming drought), which undermines pastoralists' ability to use the market to its full potential. Without this knowledge, pastoralists are limited in their ability to make the most out of a coming drought, such as by selling livestock to reinvest at a later date.

When asked about EWS, respondents expressed satisfaction that NDMA had prepared a drought response and risk management system that coordinates with other actors to manage and respond to emergencies. While most respondents felt that NDMA had played a key role in drought management, they also highlighted a need to ensure the response was sustainable and reached the households most in need. Respondents had mixed perceptions about the Kenya Meteorological Department. While GOK respondents expressed trust in the department and the accuracy of its information, many NGOs and INGOs felt it could assist with quicker decision-making and response through proper dissemination of weather alerts and advice informed by indigenous knowledge, repackaged, simplified and provided to vulnerable communities via the most appropriate medium in a timely manner. KIIs recognised that drought EWS needed to be strengthened, but progress on this is limited, owing to shortage of resources and limited capacity.

We need proper investments to enable us disseminate early warning advisories and provide sustainable initiatives that would help community members withstand the climate change stresses (male government department respondent).

Communities and DRM actors agreed that EWS were not timely and did not reach groups in need with clear advice. Moreover, those who do receive EWS may lack the economic power to diversify their livelihood options and the capacity to respond. In general, the study revealed that the level of access to EWS remains low for both social groups and represents an important area for improving resilience. It seems important to choose appropriate transmission

channels, like the radio, and to target the most vulnerable (84% of respondents have a phone, 81% have a radio and only 15% have access to the television).

4.2.5. Institutional resilience

- **The overall level of institutional resilience is 47% for women and 49% for men. This gap is small and not statistically significant, suggesting both women and men are participating in decision-making and public institution processes.**

- **On average, 73% of respondents reported taking part in community decisions.**

The level of participation of both women and men in community decision-making could be attributed to various levels of engagement and participation in various community activities. For example, a significant proportion of women are involved in decision-making because of their engagement in village savings and loans associations or in women's groups. According to KIIs and FGDs, use of Ward Adaptation Committees (with 30% representation of women) in Wajir county has promoted inclusion of women and marginalised groups in terms of leadership and participation in decision-making. KIIs and FGDs revealed the county government was currently implementing priorities identified from Ward Adaptation Committees that include rehabilitation of boreholes and water pans, establishment of shallow wells and provision of piping from boreholes to water kiosks to enable access to water by marginalised communities, mostly in areas that are politically represented. However, it is not clear to what level decisions proposed influence policy, and disaster management. Respondents, particularly officials, mentioned that, as a country, Kenya seems well prepared 'on paper' but in practice this is not the case.

Most KIIs and FGDs suggested that groups that were politically represented had greater influence over political decision-making, despite procedural equality in the democratic process. This leads to 'favours' in terms of access to resources and support services. Meanwhile, groups that are not politically represented are more exposed to the effects of drought, making them more vulnerable but without access to political representation or resources to help them manage the hazard. This powerlessness, especially during drought, has led to increased conflict with other communities over the need for water and pasture during migration within the county and in neighbouring counties like Moyale and Marsabit.

> *There is no proper pasture and water management system that has led to a scramble for the few resources, increasing conflict amongst us* (male FGD respondent, Wajir South).

Findings from KIIs and FGDs revealed that villages that did not have a member of their clan in a political position, as in Machesa, Garse Qoftu and Batalu wards, receive hardly any support from national or local government, NGOs or well-wishers during droughts, because they do not have anyone to safeguard their interests. Instead, they have to rely on their already limited resources, which

can barely sustain them, meaning it is very difficult for them to bounce back. Furthermore, high poverty levels mean these groups cannot afford school fees, which leads to low levels of educational attainment. As such, very few, if any, have access to employment opportunities.

> *We have suffered so much as minority groups with no political representation. We don't have rights to anything. A year ago, a politician sent police to torch our homesteads and we were brutally beaten after fighting for a water resource with a clan that had political representation* (male FGD participant, Wajir South).

> *Clans with political representation access relief food and water trucking* (ward administrator, Wajir county).

> *As much as we strive for fairness and equitable distribution of resources, we always give priority to politicians' clans, in terms of food aid distribution or water trucking. During resources distribution, we always start with the clans from the governor side and other politicians before we distribute to the rest. If resources are limited, the most vulnerable groups will not access it* (male government official, Wajir county).

These political inequalities further marginalise women. Although findings reveal that women hold positions at the county level, for example on the County Executive Committee for Environment, Lands and Economic Planning, and are included in ward committees, their voices are rarely taken into consideration.

> *Women are adopted into ward committees or even nominated into political positions because it is a requirement in the Constitution of Kenya; however, they rarely have any influence in decision making* (female respondent, Wajir Technical Women Group).

When respondents were asked whether they participated in the decisions of their community, only 53–60% of women (range depending on social group) answered yes, while most men (81–100%) answered yes. Such a difference is not statistically significant though. Evidence from the FGDs revealed that both women and men without political representation are often excluded from decision-making processes owing to low self-esteem and low levels of education, which can be attributed to their exclusion from social institutions and social avenues for growth.

There was common agreement in both KIIs and FGDs that both national and county governments have established policies and specified plans and activities to be taken before drought; to prepare people and enhance institutional and coping capacities; to forecast or warn of approaching dangers; and to ensure a coordinated and effective response in a drought situation (contingency planning) in order to limit the adverse impacts.

Respondents agreed that both the national and county government and other humanitarian actors had responded to emergencies and disasters in the past through the provision of food items, water, cash vouchers, medicines and other

necessities to help communities cope. Vulnerability assessments play a key role in supporting inclusive DRM. Both government and NGOs and INGOs stated they collect local-level information relating to socioeconomic factors such as sex, disability and marginalisation to determine the most vulnerable. Nevertheless, findings reveal that, while drought response is well coordinated, some of the most vulnerable groups do not benefit because of lack of political representation, gender inequalities, poor infrastructure and lack of up-to-date data to identify, for example, the elderly and persons with disabilities, especially in very remote areas.

In terms of access to assistance from external sources, no differences were recorded in the survey between the two social groups in terms of those who are politically represented and those who are not. This could be linked to the finding from FGDs that, even if groups with political representation have better access to resources during drought, these are not enough to help them cope, and they still suffer as much as those from groups without political representation. KIIs and FGDs suggested that political representation played a critical role in food relief distribution, where groups that were politically represented received priority. In particular, disadvantaged groups such as minority groups, female-headed households, orphans, persons with disabilities and older persons are heavily reliant on hand-outs and food relief.

The media could play a key role in helping communities at household level obtain the required assistance during drought, creating awareness, disseminating early warning advice and 'putting pressure' on duty bearers to implement disaster response. KIIs and FGDs were in agreement that the national and county governments, NGOs, INGOs and other actors such as the media had invested in awareness creation and capacity-building on climate change issues to equip vulnerable communities with the necessary information on how to prepare for, cope with and respond to natural hazards. It was revealed that development actors like the World Food Programme continue to strengthen the capacity of government institutions on emergency preparedness and response (e.g. the Directorate of Disaster Management), to natural hazard-related disasters. Nevertheless, there is a need to regulate charcoal-burning, to which community members have resorted for survival during drought.

4.3. Intersectional approaches to vulnerability reduction and resilience

This section considers the extent to which intersectional approaches to vulnerability reduction and resilience-building are being taken by different government entities and organisations at both national and local level in response to drought. This includes what institutional structures exist to support intersectional approaches to vulnerability reduction and resilience-building; the extent to which there is coordination on gender, inclusion, climate change, natural hazards and DRRM; whether DRRM is considering intersecting inequalities and promoting inclusive people-centred approaches; if climate and disaster risk is being considered by government entities and operational agencies

working on GESI; and if disaggregated data is being collected and to what extent it is being analysed and used to inform policy and programming.

4.3.1. Institutional structures to support intersectional approaches to vulnerability reduction and resilience

Some KIIs noted that devolved government presents an opportunity to diversify and implement appropriate responses to build resilience to climate change, as each level of government performs distinct functions while pursuing cooperation with the other levels of government, where necessary.

Constitutional and legislative changes in Kenya are advancing the DRR agenda although the implications for GESI are not clear. To reduce vulnerabilities to risks, the formulation of national policy on DRM by GOK and the establishment of various institutions like the Ministry of Devolution and Planning, Directorate of special programmes and NDMA to coordinate DRR initiatives within a unified policy framework, have led to institutionalised mechanisms for addressing natural hazards and climate change. This has strengthened institutions involved in disaster management, as well as partnerships, networks and the mainstreaming of DRM across different development processes and sectors. However, challenges remain in terms of allocations and capacity development to ensure inclusion of intersectional approaches to vulnerability reduction and resilience-building during implementation.

Currently, NDMA is mandated to coordinate all disaster response strategies but it is not clear to what extent it takes an inclusive people-centred approach to respond to disasters. Both KIIs and FGDs suggested a need to strengthen coordination around natural hazards, climate change and climate variability, gender, social inclusion and ensuring no-one is left behind. This includes greater vertical integration between national, sub-national and local levels of government and organisations. It will also need to involve greater partnerships with local networks and grassroots groups, and horizontal lesson-sharing and coordination between different sectoral ministries and departments and between organisations to scale up action on inclusive CCA and DRM and to devise locally appropriate solutions that support effective intersectional approaches to vulnerability reduction and resilience-building (Fraser and Kirbyshire, 2017; Cao et al., 2019 forthcoming).

The mandate of the National Gender Equality Commission, established in 2011, includes monitoring, facilitating and advising on the integration of the principles of equality and freedom from discrimination in all national and county policies, laws and administrative regulations in all public and private institutions; ensuring compliance with all treaties and conventions ratified by Kenya relating to issues of equality and freedom from discrimination and relating to special interest groups, including minorities and marginalised persons, women, persons with disabilities and children; coordinating and facilitating mainstreaming of issues of gender, persons with disabilities and other marginalised groups in national development and advising GOK on all aspects of inclusion; and monitoring, facilitating and advising on the development of affirmative action

and implementation of policies as contemplated in the Constitution. However, it is not clear how much NGEC has ensured application of intersectional approaches to ensure the rights of marginalised groups are protected and to ensure the existence of equity and equality in resilience-building policy and programming.

Although NGEC claims it contributes to the reduction of inequalities for women, men, persons with disabilities, youth, children, the elderly, minorities and marginalised communities, there is no documentation to show the extent of this in overcoming critical barriers, including gender gaps and other inequalities, which affect access to and control of resources, economic opportunities, power and political voice.

> *A lot of work still has to be done especially at the legislative level towards providing adequate legal mechanisms for complying with constitutional imperatives especially the inclusion of special interest groups in appointive and elective bodies. This however has to be informed by bipartisan political goodwill* (NGEC commissioner).

Section 5.2, Article 27 (3) of the Constitution of Kenya 2010, states unequivocally that 'women and men have the right to equal treatment, including the right to equal opportunities in political, economic, cultural and social spheres' GOK (2010b). Chapter 7, Article 81(b) further demands male and female representation in elective bodies, with no more than two-thirds of members of either sex. It further stipulates that there must be a women's representative position for every county at the National Assembly whose mandate is to promote the interests of women and girls within their counties (and nationwide) by coming up with legislation that favours women and girls within their dominions. There is also a legal requirement that 30% of GOK procurement opportunities are set aside specifically for enterprises owned by women, youth and persons with a disability.

Some KIIs, especially at national level, claimed that these provisions were slowly increasing the voice of and access to resources for women and marginalised groups, who were aware of their rights. Involvement and empowerment of marginalised groups has been encouraged for several years, and there is growing representation in parliament, government and local administrations. Nevertheless, it is evident that the majority of disadvantaged groups are not aware of these provisions and thus have not been demanding full implementation. Persons with disabilities were seen as often being stigmatised against and receiving limited political representation in decision-making bodies.

While respondents agreed that some relevant policies existed, they expressed dissatisfaction with regard to the level of implementation. KIIs at national level suggested that the constitutional and legislative changes in Kenya provided a clear opportunity to advance DRM and GESI. The devolved governance system introduced by the 2010 Constitution has brought both challenges and opportunities. National and local key informants were passionate about the opportunities devolution presented for DRM, but they were also aware of capacity gaps, weak coordination and lack of proper resources to allow

meaningful resilience-building at both local and national levels. KIIs highlighted concerns about how GESI or social protection issues in times of drought were going to be taken into account – for instance challenges were raised around economic and livelihood pressures on poor and marginalised people which prevent their participation in DRM; coordination between different government departments and actors; and lack of proper resourcing (budget allocation) to support institutional capacities and implementation at different levels; and limited resources to provide relief to disaster-affected people.

KIIs suggested that natural hazards and climate change must be considered in policy planning and in budgetary processes for example, and that technical, financial and human resource capacities in different ministries are invested in, to enable them to effectively execute responsibilities. Resource allocation to investments on drought mitigation is critical in ensuring community members can cope during drought. Although there are many DRR initiatives, implemented by government and NGOs, these are mostly short term. More comprehensive long-term integrated initiatives to build community resilience, incorporating livelihood interventions, are not practised. It was also revealed that both county and national government preparedness is much more reactive than proactive.

Government officials, NGOs and INGOs recognise the need to incorporate GESI at all levels, including in communities, in designing programmes and disaster response mechanisms. Key informants, however, were quick to note that marginalisation and exclusion arose from political, economic, educational, social and cultural constraints on women's empowerment. Overall, KIIs recognised the complexity of intersectionality and the challenges in developing intersectional approaches to vulnerability reduction and resilience-building, and the need for adequate resourcing and investment in human capacities for effective implementation of such approaches.

4.3.2. Data collection/information

Data collection plays a key role in supporting inclusive DRM, and disaggregated data and analysis is important for intersectional approaches to vulnerability reduction and resilience-building, so that policymakers and practitioners understand different intersecting inequalities and use this information to inform inclusive policy and programming.

Several institutions in Kenya continue to collect data based on their needs/ use. These include the Kenya National Bureau of Statistics, the Kenya Revenue Authority, the National Registration Bureau and NGEC. The latter is mandated with, among other duties, establishing a directory of ethnic minority and marginalised communities in all the 47 counties of Kenya, setting up a database on issues relating to equality and freedom from discrimination for different affected interest groups and the production of periodic national, regional and international reporting on progress in the realisation of equality and freedom from discrimination for such groups. Most recently, Kenya has launched the National Integrated Identity Management System to enable registration of citizens and better service delivery to citizens.

> *We carried out gender analysis to help us identify barriers that informed our approach. We encourage registration of women as household head to encourage decision making, since women are the best managers and handle food well in a household (male INGO staff).*

In addition, INGOs, NGOs, UN agencies, the World Bank and the GOK Hunger Safety Net Programme (HSNP) have collected useful data that can be used to support DRM approaches. The International Livestock Research Institute, for example, has worked with stakeholders and local experts from Wajir to map key rangeland and livestock resources at an inter-county, northern Kenya scale and at county scale. This has resulted in GIS data on stock routes, shared drought pastures, conflict hotspots and livestock-related infrastructure that can be used for spatial planning. NDMA also performs monthly multi-hazard risk assessments that are used to inform county responses to drought.

Nevertheless, human and financial capacity to collect data across the wide range of potential indicators appears to be relatively limited. Both KIIs and FGDs revealed that current available data collected by various institutions including NGOs and INGOs are not up to date and there is a lack of disaggregated data and baseline assessment/information on who is most vulnerable to drought and where they are located. Moreover, institutions tend to work in silos with their 'own' data, and these databases have not been merged, analysed and used for decision-making, especially on DRM to ensure comprehensive risk assessment for effective interventions. KIIs also revealed there is a general lack of joint planning by various government departments on approaches for DRM, which risks duplicating or missing important efforts to build resilience. Even NGEC, who is mandated to ensure implementation of GESI, lacks up-to-date national statistics to inform their work. Better disaggregated data and analysis is needed to implement effective intersectional approaches to vulnerability reduction and resilience-building.

4.3.3. Local capacity-building and approaches to build the resilience of households

Both national and county governments and INGOs and NGOs have supported vulnerable groups from different socioeconomic levels. However, most interventions target women, persons with disabilities, older persons, orphans, lower-income groups and those out of work. People who are wealthy, educated and in work, and those living in urban or peri-urban areas, are not considered vulnerable.

The HSNP II, which is coordinated by the National Social Protection Secretariat, provides a regular payment of an unconditional cash transfer voucher (KSh 4,900 ($48.18) every two months) to identified vulnerable groups so they can purchase the food they need to survive. Cash transfers for orphans and vulnerable children strengthen households' capacities to provide a social protection system to families. Some NGOs, including Islamic Relief, use a market-sensitive voucher system to increase access to immediate food and critical non-food items.

Although various institutions/organisations have identified a variety of categories as vulnerable, it is not clear to what extent different intersectional approaches have been taken into account in the distribution of resources to support communities to cope with natural hazards, climate change and climate variability. Both KIIs and FGDs revealed that majority of the identified vulnerable groups have been left out (only few reached), especially persons with disabilities and the elderly, because of lack of up-to-date data, technical capacity and human and financial resources to build sustainable models that will address the effects of drought and build community resilience.

Wajir has relied on humanitarian aid for many years, which has led to various organisations conducting numerous trainings and awareness programmes, on livelihood diversification; group savings; preparation for and response to drought; and interpretation and use of EWS, among others. These have provided information that has helped some community members cope during drought, but such models are not sustainable. KIIs at national level raised the issue of strengthening household capacities to come up with their own initiatives for survival to promote ownership and responsibility rather than fully depending on external actors for assistance. Moreover, both KIIs and FGDs recognised that investments in capacity-building had not reached remote communities in need, and that local institutions/county government require capacity-building on how to incorporate GESI into DRM policy and programming, to ensure no one is left behind.

Generally, intersectional approaches to vulnerability reduction and resilience-building are not considered during planning and implementation, and both FGDs and KIIs recognised the complexity of intersectionality and the challenges in developing appropriate and inclusive DRM policies and programming. Moreover, there is a need for more integrated programmes to build community resilience, and comprehensive integration of risk into sector development plans and projects to ensure effective systems and services (including livelihood diversification and employment opportunities) that promote people's wellbeing despite environmental shocks and stresses (Diwakar et al., 2019).

5.
DISCUSSION

There is an acknowledged need to find effective and practical ways of analysing intersectionality on the ground. Our studies are an attempt to fill this gap.

The two study countries are very different in many respects, but they also exhibit a number of similarities; they are multi-hazard contexts, with a number of major hazards that have considerable human and economic impacts. The two main hazards studied here are very different in some ways (drought in Kenya is a slow-onset hazard; flooding in Nepal is rapid-onset) but both are recurrent (flooding is an annual occurrence in Nepal and drought is frequent in arid parts of Kenya). Both countries have high levels of poverty, weak infrastructure, ethnic and other social divisions and significant disparities between women and men that impose high burdens on women. Both have gone through extended periods of political turbulence but in recent years have adopted new constitutions with more devolved government. Disaster institutions in the two countries are also modernising, moving beyond disaster response to address longer-term DRR and CCA, but progress continues to be impeded by deficiencies in resources and capacity.

The results from the different data-gathering exercises reveal complex interactions between a variety of environmental, socioeconomic, cultural, political and institutional factors that are difficult to disentangle. Intersecting identities are socially constructed, and can be changed, and relate to a range

of contextual factors including infrastructure, economics and institutions. The four resilience components (economic, social, infrastructure, institutional) with their 36 indicators and 120 variables provide a basic but comprehensive framework for analysis, using these different types of evidence. Overall, differences between women and men emerge strongly from the studies but other factors or identities are often less apparent, which could indicate the challenge of unpicking the complexity of intersecting factors in vulnerability and inequality.

Social inequalities are widespread and deep-rooted in both Wajir and the Tarai, where there are complex social structures that can be difficult to understand: this can make it difficult to identify the distinctive vulnerabilities of specific groups. Minority groups find it difficult to gain access to assets and representation, particularly in Wajir. The qualitative evidence from Wajir indicates strong competition for natural resources, leading to disputes and conflict between communities (environmental deterioration is a prominent issue). Conflict was not mentioned in Nepal, although there have been communal tensions in the country and the Tarai in recent years.

Survey data from Nepal indicates that men are more resilient to natural hazards and climate change than women. There is a statistically significant difference between men and women within both disadvantaged and other groups (this is particularly evident in the institutional and social components of the index). In general, men are shown to have better access to, and control over, financial resources (economic resilience score). Women appear to be less able to cope with a disaster or shock (social resilience score). In terms of location and the built environment, there is marginal difference (infrastructure resilience score). Men participate more in public decision-making processes, where their views are more likely to be listened to than those of women (institutional resilience score). The results show no significant difference overall between the resilience scores of the two types of social group. The differences between women and men are larger and more significant within the disadvantaged groups than the other groups (this owes mainly to their scores in the social and institutional components of the index), but there are significant differences between women and men in the scores for both types of group.

Survey data for Kenya paints a different picture. Here, the total resilience index score and the results for the individual four resilience components are similar for women and men, in both social groups. This unexpected finding is difficult to explain, especially since a significant proportion of people who participated in the KIIs and FGDs felt strongly that social inequality (such as clan affiliation, gender and power relations, literacy levels, disability, age and social ties) was a key factor in adaptive capacity to natural hazards and climate change. The qualitative evidence points to significant gender inequality. It reveals that women in Wajir lack economic power, and control over assets and voice in household decision-making: they do not have equal rights to inheritance, for example, and their domestic burdens restrict development of other livelihood opportunities.

GESI is becoming more important in Nepal's development policy and planning, thanks to the 2015 Constitution, but household roles and responsibilities remain gendered. Similarly, although the Kenyan Constitution's requirement for women's

participation in political bodies has led to women holding some official positions at county and ward levels, their voices rarely influence decision-making.

The qualitative data from Nepal provides some information on ethnicity and caste factors contributing to vulnerability[26] but puts more emphasis on gender and poverty. Possession of wealth makes it possible to build more resilient houses and people with money are better able to respond to flooding. Poverty forces families to live in flood-prone locations close to riverbanks, and in housing that is not flood-resistant (there is an inevitable trade-off between economic or livelihood opportunities and living in an unsafe location). Poverty was also generally recognised to be a significant factor in Kenya, limiting access to natural resources and preventing investment in livelihood diversification.

Poverty also leads to extensive male migration in search of livelihood opportunities, which adds to the burden of responsibility on women left behind (making family, household and livelihood decisions; coping with hazard events). Migration for work is a common response to poverty in Nepal but was identified as a challenge for the female-headed households, and a contributing factor to their vulnerability, particularly during the flood season. In Wajir, women are also left behind to manage households, without protection, when men are away seeking water and pasture for their herds.

Households in both countries deploy a range of indigenous or local coping strategies to protect their various household and livelihood assets. Livelihood diversification appears to be a core resilience strategy everywhere and hence is an entry point for many NGO programmes. Technical innovation in Wajir also focuses on livelihoods (e.g. drip irrigation), whereas in Nepal it is most apparent in the improvement of EWS.

KIIs in Wajir and Bardiya often presented a conventionally male attitude towards gender roles and norms, seeing women as victims and vulnerable rather than recognising their capacities and ability to participate in decision-making. They spoke of individual physical characteristics (e.g. men's greater strength and ability to swim in Nepal; or capacity to walk long distances in search of water and pasture in Kenya) and of gender conventions and cultural norms that restrict women's mobility outside the home and their independent action in crises. Nepal KIIs highlighted women's vulnerability in evacuation shelters, owing to safety and personal hygiene/sanitation requirements, and there is some anecdotal evidence of women's unwillingness to go to shelters; in Kenya, GBV was identified as a prominent risk.

Infrastructure is equally important to resilience in both Bardiya and Wajir. Poor or damaged transport and communications infrastructure in Wajir was

---

26 For example, Tharus were explicitly identified as a distinct vulnerable group, although this was said to be due to poverty which forced them to live close to the rivers or as tenants, in poor-quality housing that was easily damaged, with large families and an unwillingness to migrate from their ancestral homes. There was also mention of the lack of harmony between Brahmins and Dalits, but for the most part the group discussions steered clear of the issue of social tensions between different caste and ethnic groups, even though this is known to exist in the Tarai (Asia Foundation 2017).

identified as an obstacle to relief distribution and access to markets and products. Road infrastructure was said to be generally poor, and sometimes impassable during the rainy season. Wards with political representation have better access to power, water and communications facilities, social amenities and reliable public transport. In Bardiya, monsoon floods often damage roads and bridges, but there was no suggestion of bias in the location and repair of road transport infrastructure.

EWS are vital elements in both countries' DRM systems, for slow-onset (drought) and rapid-onset (flood) hazards. In Kenya, early warning climate information is disseminated to national and local government and NGOs. However, only 5% of people interviewed in the survey trusted and acted upon these warnings, and EWS messages were said to be unreliable and unclear; this lack of confidence makes it difficult for pastoralists to decide when to sell livestock. In Bardiya, there have been major improvements in EWS, driven by learning from major flooding in 2014. Advances in communication technologies (particularly SMS messaging and social media using mobile phones) are supporting EWS effectiveness in both countries.

Both countries have remodelled their disaster management structures and systems in recent years, partly related to an ongoing shift away from a response focus and towards a DRR approach, partly in response to decentralisation of government as a whole. These processes are still being worked through. Disaster management institutions in both countries should be made more sensitive and responsive to local needs and issues, but this also requires building local institutional capacity – and therefore funding and technical assistance.

6.
RECOMMENDATIONS

Image: Oxfam
East Africa

This study makes several recommendations to build intersectional approaches to vulnerability reduction and resilience-building in policy and programming:

- There is a need for thorough, systematic data collection, which is disaggregated by sex, age, economic status, ethnicity, caste and disability (as a minimum standard), to identify marginalised groups and make their different needs and capacities more visible to decision-makers (van Ek and Schot, 2017; Smith et al., 2017; Chaplin et al., 2019). This includes reviewing existing indicators and identifying additional ones where necessary.

- It will be necessary to set up more comprehensive, long-term, integrated programmes to build resilience, promoting the four components used in this study – economic, social, infrastructure and institutional. This includes ensuring the continuity of systems and services (including education, health and employment opportunities) that promote people's wellbeing, despite environmental shocks and stresses (Diwakar et al., 2019).

- Interventions that aim to build resilience to natural hazards and climate change need to address structural inequalities between women, men and other intersecting factors that shape people's experiences of these events, and discrimination, marginalisation and the unequal distribution of power.

- Policies and programmes should recognise that people are not homogenous and have different vulnerabilities, needs, priorities and capacities. It is important to promote existing capacities and build capacities to help people adapt to, anticipate and absorb the impacts of natural hazards, climate change and climate variability (Bahadur et al., 2015; Cao et al., 2019 forthcoming).

- Better coordination is needed around hazards, climate change and climate variability, gender, social inclusion and ensuring no-one is left behind. This includes greater vertical integration between national, sub-national and local levels of government and organisations, and partnerships with local networks and grassroots groups. Horizontal lesson-sharing and coordination between different sectoral ministries and departments and between organisations will also be required to scale up action on inclusive CCA and DRM and to ensure solutions are intersectional and appropriate to the local context (Fraser and Kirbyshire, 2017; Cao et al., 2019 forthcoming).

- It is necessary to promote the representation of marginalised groups in leadership and inclusive participation in decision-making processes (while ensuring this is voluntary and does not add a burden) to make sure people's needs and priorities are self-identified and included within policies and programmes that aim to build women and other marginalised groups' resilience to climate change and natural hazards.

- Strengthening EWS through investing in sub-national meteorological systems to provide greater access to real-time data collection and transmission and addressing human resource constraints is required. There is also a need to strengthen understanding of projected changes in climatic conditions, integrate science with indigenous knowledge, simplify advice and use multiple channels to reach various groups.

- There is a need to enhance knowledge and capacity to manage climate risks at the sub-national level, establish appropriate horizontal and vertical coordinating bodies and put in place the technical, financial and human resources needed to support climate risk prevention, response and recovery.

- The findings of this work can be used to refine the methodology and approach to better capture the complexities of intersectionality and better means to identify and measure significant differences between groups. One option would be to look also at geographical location, using GIS to map environmental characteristics, access to infrastructure and risk profile, which could help guide the sampling.

References

ADCAP – Age and Disability Capacity Programme (2018a) *Good practice guide: embedding inclusion of older people and people with disabilities in humanitarian policy and practice*. ADCAP. London: HelpAge International

ADCAP (2018b) *Humanitarian inclusion standards for older people*. ADCAP. London: HelpAge International

Bahadur, A., Peters, K., Wilkinson, E. et al. (2015) *The 3As: tracking resilience across BRACED*. London: ODI

Barbelet, V. (2018) 'Older people in displacement: falling through the cracks of emergency responses'. *ODI Report*. London: ODI

Barbelet, V. and Samuels, F. with G. Plank (2018) 'The role and vulnerabilities of older people in drought in East Africa: progress, challenges and opportunities for more inclusive humanitarian response'. ODI Report. London: ODI

Bond (2018) *Leave no one behind: how the development community is realising the pledge*. London: Bond

Cao, Y., Leon-Himmelstine, C. and Lovell, E. (2019 forthcoming) 'Strengthening women-focused investments in climate and disaster resilience'. ODI and ADB

Chaplin, D., Twigg, J., and Lovell, E. (2019) 'Intersectional approaches to vulnerability reduction and resilience building: a scoping study'. *Resilience Intel*. London: BRACED and ODI

Davis, K. (2008) 'Intersectionality as buzzword: a sociology of science perspective on what makes a feminist theory useful' *Feminist Theory* 9(1): 67–85

Diwakar, V. and Shepherd, A. (2018) *Sustaining escapes from poverty*. Working Paper. London: ODI

Diwakar, V., Lovell, E., Opitz-Stapleton, S., Shepherd, A. and Twigg, J. (2019) *Child poverty, disasters, and climate change: examining relationships and assessing implications over a child's life course*. London: ODI

Djoudi, H. (2015) 'At the intersection of inequities: lessons learned from CIFOR's work on gender and climate change adaptation in West Africa'. Gender Climate Brief. Bogor: CIFOR

Fraser, A. and Kirbyshire, A. (2017) *Supporting governance for climate resilience: working with political institutions*. London: ODI

Lenhardt, A. and Samman, E. (2015) *In quest of inclusive progress: exploring the intersecting inequalities in human development*. London: ODI

Le Masson, V. and Lovell, E. (2015) *Assessing people's resilience: a gender sensitive toolkit for practitioners to measure and compare women's and men's resilience to disaster risks at local levels*. Sydney and London: ActionAid Australia and ODI

Lovell, E. and Le Masson, V. (2014) *Equity and inclusion in disaster risk reduction: building resilience for all*. London: ODI and CDKN

Mission East, LftW – Light for the World and ICCO – Inter-Church Organisation for Development Cooperation (2017) *Towards inclusion: a guide for organisation and practitioners*. (https://missioneast.org/sites/default/files/2018–01/Towards%20 Inclusion%20-%20A%20guide%20for%20organisations%20%26%20practitioners.pdf)

MSB – Swedish Civil Contingencies Agency (2013) *Institutionalizing gender equality in disaster risk reduction*. Stockholm: MSB and SEI

Plan International (2013) *Because I am a girl. The state of the world's girls 2013. In double jeopardy: adolescent girls and disasters*. Woking: Plan International

Plan International (2017) *Let me decide and thrive: global discrimination and exclusion of girls and young women with disabilities*. Woking: Plan International

Save the Children (2018) 'Save the Children's Group-based Inequality Database (GRID)'. (https://campaigns.savethechildren.net/grid)

Sheppard, P., Polack, S. and McGivern, M. (2018) *Missing millions: how older people with disabilities are excluded from humanitarian response*. London: HelpAge International

Smith, F., Simard, M., Twigg, J., Kett, M. and Cole, E. (2017) *Disability and climate resilience: a literature review.* London: Leonard Cheshire

Stewart, A. and Lander, J. (2018) *Transforming gender relations in an ageing world, a policy discussion paper*. London: HelpAge International

Thompson-Hall, M., Carr, E.R. and Pascual, U. (2016) 'Enhancing and expanding intersectional research for climate change adaptation in agrarian settings' *Ambio* 45(3): 373–382

UNFCCC – United Nations Framework Convention on Climate Change (2015) *Paris Agreement*. (https://unfccc.int/sites/default/files/english_paris_agreement.pdf)

UNISDR – United Nations Office for Disaster Risk Reduction (2015) *Sendai Framework for Disaster Risk Reduction 2015–2030*. Geneva: UNISDR

UN – United Nations (2015) 'Transforming our world: the 2030 Agenda for Sustainable Development'. New York: UN

UN (2018) *The Sustainable Development Goals report 2018*. New York: UN

Wisner, B., Cannon, T. and Davis, I. (2004) *At risk: natural hazards, people's vulnerability and disasters*. Abingdon: Routledge

Nepal

Aarthiknews (2018) 'Tarai-Madhes Prosperity Programme implemented'. 23 October (http://english.aarthiknews.com/Tarai-madhes-prosperity-programme-implemented)

CBS – Central Bureau of Statistics (2014) National population and housing census (PHC), *2011. Population Atlas of Nepal, 2014* Kathmandu: CBS

Cosic, D., Dahal, S. and Kitzmuller, M. (2017) *Climbing higher: towards a middle-income Nepal*. Washington DC: World Bank

DEOC – District Emergency Operations Center Bardiya (n.d.) 'Presentation'. Bardiya: District Emergency Operations Center

Devkota, R. (2014) 'Climate change: trends and people's perception in Nepal' *Journal of Environmental Protection* 5(4): 255–265

Dewan, T. (2015) 'Societal impacts and vulnerability to floods in Bangladesh and Nepal' *Weather and Climate Extremes* 7: 36–42

Gaire, S., Delgado, R. and Gonzalez, P. (2015) 'Disaster risk profile and existing legal framework of Nepal: floods and landslides' *Risk Management and Healthcare Policy* 8: 139–149

Gellner, D. (2007) 'Caste, ethnicity and inequality in Nepal' *Economic and Political Weekly*, 19 May: 182–1827

GoN – Government of Nepal (2018) *Labour migration for employment: a status report for Nepal, 2015/16–2016/17.* Kathmandu: Ministry of Labour and Employment

GoN – Government of Nepal and UNDP – UN Development Programme (2014) *Nepal human development report 2014*. Kathmandu: Planning Commission and UNDP

Holmes, R., Samuels, F., Evans, M., Ghimire, A, and Twigg, J. (2019) *An assessment of Nepal's social security allowance schemes: the potential to support emergency response to floods*. London: ODI

INFORM (2018) 'Nepal country profile'. (www.inform-index.org/Portals/0/Inform/2018/country_profiles/NPL.pdf)

Jones, S., Oven, K., Manyena, B. and Aryal, K. (2014) 'Governance struggles and policy processes in disaster risk reduction: a case study from Nepal' *Geoforum* 57: 78–90

MoHA – Ministry of Home Affairs (2017) *Nepal disaster report 2017: the road to Sendai.* Kathmandu: GoN

Nepal, P., Khanal, N. and Sharma, B. (2018) 'Policies and institutions for disaster risk management in Nepal: a review' *Geographical Journal of Nepal* 11: 1–24

Nepali, S., Ghale, S. and Hachhethu, K. (2018) *Federal Nepal: socio-cultural profiles of the seven provinces.* Kathmandu: Governance Facility

Penta S., DeYoung, S.E., Yoder-Bontrager, D. and Suji, M. (2016) 'Trauma, victims, time, changing organizations and the Nepal 2015 earthquake' *International Journal of Mass Emergencies and Disasters* 34(3): 345–375

Samjhauta Nepal (2018) *Nepal's locally elected women representatives: exploratory study of needs and capacities*. Kathmandu: Samjhauta Nepal

The Asia Foundation (2017) *The state of conflict and violence in Asia*. San Francisco, CA: The Asia Foundation

UN CDP – UN Committee for Development Policy (2018) 'Vulnerability profile of Nepal'. 20th Plenary Session (www.un.org/development/desa/dpad/wp-content/…/CDP-PL-2018–6c.pdf)

Walsh S (2017) 'Mainstreaming disaster risk reduction in Nepal: the rhetoric and the reality'. PhD thesis, Northumbria University

Kenya

Awuor, C. (2009) 'Increasing drought in arid and semi-arid Kenya' in J. Ensor and R. Berger (eds.) *Understanding climate change adaptation: lessons from community-based approaches*: 101–114. Rugby: Practical Action Publishing

Carrier, N. and Kochore, H.H. (2014) 'Navigating ethnicity and electoral politics in northern Kenya: the case of the 2013 election' *Journal of Eastern African Studies* 8(1): 135–152

Collier, P. and Lal, D. (1980) *Poverty and growth in Kenya*. Staff Working Paper. Washington DC: World Bank

Cottrel-Ghai, J., Ghai, Y., Sing'Oei, K. and Wanyoike, W. (2013) '*Taking diversity seriously: minorities and political participation in Kenya*'. Briefing. Kampala: Minority Rights Group International

County Government of Wajir (2018) 'Wajir county integrated development plan 2018–2022'. (http://cog.go.ke/cog-reports/category/106-county-integrated-development-plans-2018–2022?download=351:wajir-county-integrated-development-plan-2018–2022)

Development Initiatives (2017) 'Assessment of Kenya's preparedness to disasters caused by natural hazards: floods, drought and disease outbreak'. (http://devinit.org/post/assessment-of-kenyas-preparedness-to-disasters-caused-by-natural-hazards-floods-drought-and-disease-outbreak/#)

GOK (2007) *Kenya Vision 2030*: *a globally competitive and prosperous Kenya*. Nairobi: GOK

GOK (2008) *First medium term plan (2008–2012)*. Nairobi: GOK

GOK (2009) *National disaster management policy.* Nairobi: GOK

GOK (2010a) *National climate change response strategy*: *executive brief.* Nairobi: GOK

GOK (2010b) *Constitution of Kenya*. Nairobi: GOK

GOK (2013) *Sector plan for drought risk management and ending drought emergencie*s. Nairobi: GOK

GOK (2018) *Kenya: the 2018 long rains season assessment report.* Nairobi: GOK

Greer, J. and Thorbecke, E. (1986a) 'Food poverty profile applied to Kenyan smallholders' *Economic Development and Cultural Change* 35(1): 115–141

Greer, J. and Thorbecke, E. (1986b) 'A methodology for measuring food poverty applied to Kenya' *Journal of Development Economics* 24: 59–74

Huho, J. and Mugalavai, E. (2010) 'The effects of droughts on food security in Kenya' *International Journal of Climate Change: Impacts and Responses* 2: 61–72

Kimuna, R.S. and Djamba, K.Y (2008) 'Gender-based violence: correlates of physical and sexual wife abuse in Kenya' *Journal of Family Violence* 23(5): 333–342

Kiriti, T. and Tisdell, C. (2003) *Gender inequality, poverty and human development in Kenya: main indicators, trends and limitations*. Working Paper 35. Brisbane: University of Queensland

KNBS – Kenya National Bureau of Statistics (2009) *Kenya demographic and health survey 2008–2009*. Nairobi: KNBS

KNBS (2014) *Kenya demographic and health survey 2014*. Nairobi: KNBS

KNPDRR – Kenya National Platform on Disaster Risk Reduction (2011) *Kenya: national progress report on the implementation of the Hyogo Framework for Action (2009–2011)*. (http://preventionweb.net/english/policies/v.php?id=21371andcid=90)

McIntosh, J. (2009 'Elders and "frauds": commodified expertise and politicized authenticity among Mijikenda' *Africa (Journal of the International African Institute)* 79(1): 35–52

McSweeney, C., New, M. and Lizcano, G. (2009) *UNDP climate change country profile: Kenya*. Nairobi: Kenya

MercyCorps (2019 forthcoming). *Resource mapping in Wajir county, Kenya*. Nairobi: MercyCorps

Ministry of Agriculture, Livestock and Fisheries (2018) 'Wajir climate risk profile'. (https://ccafs.cgiar.org/publications/climate-risk-profile-wajir-county-kenya-county-climate-risk-profile-series#.XI1BGUxuLb0)

MoALF – Ministry of Agriculture, Livestock and Fisheries (2017) 'Climate risk profile for Wajir county'. Kenya County Climate Risk Profile Series. Nairobi: MoALF

MOSSP – Ministry of State for Special Programmes (n.d.) *Strategic plan 2008–2012*. Nairobi: MOSSP

Mwabu, G. Masai, W. Gesami, R. et al. (2000) 'Poverty in Kenya: profiles and determinants'. Joint Research Project by the Department of Economics, University of Nairobi, and the Ministry of Planning and National Development. Nairobi: AERC

NGEC – National Gender Commission (2016) *Gender-based violence in Kenya: the economic burden on survivors*. Nairobi: NGEC

Njoka, J.T., with Yanda, P., Maganga, F., Liwenga, E. et al. (2016) *Kenya: country situation assessment* Working Paper. Report for PRISE project

O'Brien, K., Sygna, L., Leichenko, R., Adger, W. N., Barnett, J., Mitchell, T. and Mortreux, C. (2008) 'Disaster risk reduction, climate change adaptation and human security'. Report for the Norwegian Ministry of Foreign Affairs

Ondicho, T.G. (2013) 'Domestic violence in Kenya: why battered women stay' *International Journal of Social and Behavioural Science* 1(4): 105–111

Parry, J.-E., Echeverría, D., Dekens, J. and Maitima, K. (2013) *Climate risks, vulnerability and governance in Kenya, a review*. Nairobi: IISD

Republic of Kenya (1981) *National food policy*. Nairobi: GOK

Republic of Kenya (1998) 'National poverty eradication plan'. Post Technical Workshop Draft. Nairobi: GOK

Republic of Kenya (1999) 'National policy on water resources, management and development'. Sessional Paper 1. Nairobi: GOK

Said, M. Ogutu, JO., Bedelian, C., Moiko, S., Muhwanga, J., Abuya, J. and Carabine, E. (forthcoming) *Projected climate change impacts on cattle in Kenya's arid and semi-arid lands based on RCP 2.6, 4.5 and 8.5*. PRISE Working Paper

UNAIDS – Joint UN Programme on HIV and AIDS (2006) *Violence against women and children in the era of HIV and AIDS: a situation and response analysis in Kenya*. Geneva: UNAIDS

UNDP – UN Development Programme (n.d.) 'Kenya natural disaster profile'. (http://meteorology.uonbi.ac.ke/sites/default/files/cbps/sps/meteorology/Project%20on%20Disasters.pdf)

UNDP – UN Development Programme (2018) *Human Development Indices and Indicators: 2018 statistical update: Kenya*. Briefing Note on the 2018 Statistical Update. New York: UNDP

UNFPA – UN Population Fund (2006) *Kenya: creating a safe haven and a better future for Maasai girls escaping violence*. Nairobi: UNFPA

UNIFEM – UN Development Fund for Women (2012) 'Violence against women in Kenya factsheet'. New York: UNIFEM

Wanjuhi, D.M (2016) 'Assessment of meteorological drought characteristics in north eastern counties of Kenya'

Wajir County (2013) 'First county integrated development plan 2013–2017'. (www.wajir.go.ke/UserSiteFiles/publicDocs/Wajir%20CIDP%201st-1.pdf)

Wajir County (2017) 'Smart survey report July 2017'. Health Department. (www.nutritionhealth.or.ke/wp-content/uploads/SMART%20Survey%20Reports/Wajir%20County%20SMART%20Survey%20Report%20%E2%80%93%20July%202017.pdf)

World Bank (1996) *Kenya: participatory poverty assessment*. Social Development Note 26. Washington DC: World Bank

World Bank (2011) 'Turning the tide in turbulent times: making the most of Kenya's demographic change and rapid urbanization'. Kenya Economic Update 4. Poverty Reduction and Economic Management Unit, Africa Region. Nairobi: World Bank

World Bank (2013) 'Time to shift the gears: accelerating growth and poverty in the new Kenya'. Economic Update, 8th Edition, June. Nairobi: World Bank

Annex 1. Results from the survey for the different components and variables by sex and social groups

Values in the table describe the average resilience score per variable for the entire sample as well as separately for each of the intersecting sub-groups (women in the disadvantaged group; men in the disadvantaged group; women in the other social group; and men in the other social group). Because index scores are normalised, they range between 0 and 1, with 0 representing the lowest possible score for the questions within the overall sample (i.e. no resilience) and 1 representing the highest possible score for the questions within the overall sample (i.e. maximum resilience capacity).

The higher the overall resilience score the more the cell is filled in with colour. The figures in bold print highlight variables for which differences between the groups are most pronounced, meaning these variables also drive differences in the overall resilience score between the groups. The weight of these variables – that is, if they are aggregated with one or more variables in an indicator – will also influence how this difference will affect the resilience score and so the differences between the groups.

A1.1. Results from the survey: Nepal

ECONOMIC RESILIENCE SCORE – NEPAL

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	DISADVANTAGED GROUP		OTHER GROUP	
			WOMEN	MEN	WOMEN	MEN
Do you earn some cash on average per day?	**"Yes" to the response increases score of resilience**	0.43	0.12	0.63	0.27	0.72
How much do you earn on average per day?	Graduation based on the income increases the resilience score	0.18	0.03	0.31	0.04	0.36
What is your average household income per month?	Graduation based on the saving capacity increases the resilience score	0.07	0.07	0.06	0.08	0.08
Are your family able to save money during a month?	Graduation based on the saving capacity increases the resilience score	0.55	0.50	0.50	0.71	0.50
How many sources of income does your household have?	Graduation based on the number of sources of income increases the resilience score	0.18	0.19	0.18	0.18	0.17
Does your personal income remain stable throughout the year?	Graduation based on the period of stability over the year increases the resilience score	0.13	0.07	0.21	0.04	0.20
Do you think you will be able to access a loan if you need one?	"Yes" to the response increases score of resilience	0.78	0.56	0.94	0.73	0.92
Who have you taken these loans from?/ From whom can you take these loans?	Graduation based on the sources for loans increases the resilience score	0.44	0.58	0.33	0.48	0.34
Are you able to repay your loans on time?	**"Yes" to the response increases score of resilience**	0.69	0.44	0.89	0.58	0.88
Are you able to access a credit/grant from the government if you whant to?	"Yes" to the response increases score of resilience	0.37	0.18	0.57	0.12	0.60
Do you decide how your personal income is spent?	"Yes" to the response increases score of resilience	0.73	0.60	0.76	0.71	0.86

ECONOMIC RESILIENCE SCORE – NEPAL (CONTINUED)

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	DISADVANTAGED GROUP		OTHER GROUP	
			WOMEN	MEN	WOMEN	MEN
Do you decide how the household income is spent?	"Yes" to the response increases score of resilience	0.88	0.81	0.96	0.75	0.98
Do you own the land you live on?	"Yes" to the response increases score of resilience	0.93	0.97	0.97	0.85	0.88
Do you have to pay to use the land you use?	"Yes" to the response decreases score of resilience	0.03	0.03	0.00	0.12	0.00
Do you have difficulties to access natural resources needed for your livelihoods?	"Yes" to the response increases score of resilience	0.53	0.71	0.34	0.65	0.44
Do you have to pay to access land, forests or waterbodies needed to sustain your livelihood?	"Yes" to the response increases score of resilience	0.63	0.47	0.80	0.46	0.80
Do you have any livestock?	"Yes" to the response increases score of resilience	0.86	0.94	0.89	0.81	0.76
Is the quality of the natural resources you need for your livelihood changing for the better or the worse? (e.g. is the water more polluted? Is the land less productive?)	Graduation based on the improvement of quantity in water sources increases the resilience score	0.05	0.07	0.09	0.02	0.02
Is the quantity of the natural resources you need for your livelihood changing for the better or the worse? (e.g. does the amount of water decreasing? Does the number of livestock decrease?)	Graduation based on the improvement of quantity in water sources increases the resilience score	0.05	0.03	0.07	0.04	0.04
Is there competition over natural resources that affects your livelihood?	"Yes" to the response decreases score of resilience	0.52	0.21	0.80	0.19	0.88
Do you experience increased risk as a result of land/water/forest management carried out elsewhere?	"Yes" to the response decreases score of resilience	0.15	0.15	0.31	0.04	0.04
Do you have access to one or several markets?	Graduation based on the market access increases the resilience score	0.83	0.68	0.87	0.87	0.94
Can you decide where to sell your products?	"Yes" to the response decreases score of resilience	0.75	0.62	0.89	0.62	0.88
Can you decide where you buy your products?	"Yes" to the response decreases score of resilience	0.88	0.79	0.91	0.96	0.88
Is your access to the market disrupted when there is a disaster?	"Yes" to the response decreases score of resilience	0.06	0.03	0.09	0.04	0.08

SOCIAL RESILIENCE SCORE – NEPAL

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	DISADVANTAGED GROUP		OTHER GROUP	
			WOMEN	MEN	WOMEN	MEN
Do/did you go to school (formal education) and if yes, which level did you complete?	"Yes" to the response increases score of resilience	0.25	0.21	0.28	0.17	0.37
Have you received any informal education (e.g. religious teaching, reflect center)?	"Yes" to the response increases score of resilience	0.25	0.53	0.11	0.27	0.04
Do you have a primary school that is accessible in your area?	"Yes" to the response decreases score of resilience	0.96	0.94	0.97	0.92	1.00
Do you have a secondary school that is accessible in your area?	"Yes" to the response decreases score of resilience	0.70	0.68	0.69	0.65	0.80
Do you know if children learn about disasters at school?	"Yes" to the response decreases score of resilience	0.50	0.53	0.46	0.65	0.36
Can you read and write?	"Yes" to the response increases score of resilience	0.71	0.56	0.83	0.58	0.88
Do you read newspapers?	"Yes" to the response increases score of resilience	0.38	0.21	0.51	0.19	0.64

SOCIAL RESILIENCE SCORE – NEPAL (CONTINUED)

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	DISADVANTAGED GROUP		OTHER GROUP	
			WOMEN	MEN	WOMEN	MEN
Do you receive general information from a formal source (from the government)? (e.g. prices of crops, government schemes, announcements, news)	**"Yes" to the response increases score of resilience**	0.55	0.26	0.86	0.42	0.64
Do you receive general information from an informal source (others like relatives, neighbours)?	"Yes" to the response increases score of resilience	0.98	0.94	0.97	1.00	1.00
Do you rely on traditional or local knowledge for preparing, coping with and responding to a disaster?	"Yes" to the response increases score of resilience	0.47	0.56	0.54	0.38	0.32
What kind of healthcare can you access in your area?	Graduation depending of the healthcare increases the score of resilience	0.60	0.64	0.61	0.56	0.57
Are you satisfied with the health services that are provided to you?	**"Yes" to the response increases score of resilience**	0.52	0.44	0.49	0.58	0.60
Are you/or your family members able to receive skilled birth attendance in your area?	**"Yes" to the response decreases score of resilience**	0.67	0.38	0.80	0.54	1.00
Are you /or your family members able to receive reproductive health, Anti Natal Care (ANC), Post Natal Care (PNC) and other health care services as appropriate?	**"Yes" to the response increases score of resilience**	0.88	0.74	1.00	0.77	1.00
If you need to go to hospital can you get there by your own means (e.g. cash, vehicles)?	"Yes" to the response increases score of resilience	0.88	0.79	1.00	0.77	0.92
Do you need to use a middle man to access healthcare?	"Yes" to the response increases score of resilience	0.75	0.88	0.63	0.96	0.52
Do you have health insurance?	"Yes" to the response increases score of resilience	0.23	0.21	0.29	0.23	0.16
Is there enough food in the household to feed everyone adequately throughout the year?	**"Yes" to the response increases score of resilience**	0.52	0.32	0.60	0.62	0.56
Do you think your diet is balanced (during a week do you eat grain, vegetables/fruits, dairy, meat/fish/egg)?	"Yes" to the response increases score of resilience	0.81	0.74	0.84	0.92	0.76
Has your diet improved over the last 5 years?	"Yes" to the response increases score of resilience	0.84	0.82	0.91	0.88	0.72
Do you need to ask permission from a household member in order to go outside of the village, including the market?	"Yes" to the response increases score of resilience	0.38	0.26	0.57	0.27	0.40
Do you have to be accompanied when you leave the house when you go outside the village (including the market area)?	**"Yes" to the response increases score of resilience**	0.33	0.53	0.14	0.35	0.28
Do you feel safe to go outside of the village (including the market) whenever you want?	"Yes" to the response increases score of resilience	0.64	0.50	0.89	0.50	0.64
Do you or does someone in your house have to go out of the district for work?	**"Yes" to the response increases score of resilience**	0.59	0.50	0.66	0.58	0.64
Does migration help you and your family have a better income?	**"Yes" to the response increases score of resilience**	0.44	0.29	0.49	0.38	0.64
Do you feel safe in the household, when this person migrates?	"Yes" to the response increases score of resilience	0.34	0.24	0.60	0.15	0.32
Do emergencies force members of your household to migrate?	"Yes" to the response increases score of resilience	0.44	0.41	0.46	0.58	0.32
Are you aware of social safety net programmes (including government grants, SHG account) that exist in your area and are you a part of any of these programmes?	Graduation depending of the awarness increases the score of resilience	0.13	0.07	0.19	0.02	0.24
Is anyone else in your family a member of a social safety net programme?	"Yes" to the response increases score of resilience	0.21	0.18	0.14	0.54	0.00
Do you find religious groups to be supportive of your daily needs?	"Yes" to the response increases score of resilience	0.08	0.12	0.06	0.12	0.00

SOCIAL RESILIENCE SCORE – NEPAL (CONTINUED)

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	DISADVANTAGED GROUP		OTHER GROUP	
			WOMEN	MEN	WOMEN	MEN
Do religious groups support you before, during and after a disaster?	"Yes" to the response increases score of resilience	0.12	0.15	0.14	0.15	0.00
Is domestic violence a problem in your village?	"Yes" to the response increases score of resilience	0.78	0.62	0.91	0.69	0.92
Is child marriage practiced in this community?	"Yes" to the response increases score of resilience	0.94	0.94	0.94	0.88	1.00
Do you fear the chance of rape or sexual harrasment in your village?	"Yes" to the response increases score of resilience	0.52	0.21	0.80	0.27	0.80
Does gender based violence increase after a disaster? (for instance sexual abuse, rape, sexual harrasment, verbal or emotional abuse)	"Yes" to the response increases score of resilience	0.76	0.47	0.97	0.65	0.96
Would you report cases of gender based violence to the police/village court?	"Yes" to the response increases score of resilience	0.87	0.76	0.94	0.88	0.88
If a disaster occurs, how likely is it that your household would be well prepared in advance?	Graduation based on the likelihood raises the resilience score	0.62	0.47	0.79	0.46	0.75
Do you know what to do during a disaster and did you receive training?	Graduation based on the training raises the resilience score	0.46	0.40	0.60	0.23	0.58
If a disaster occurs, how likely is it that your household could change its source of income and/or livelihood, if needed?	Graduation based on the likelihood raises the resilience score	0.37	0.29	0.43	0.26	0.49
If an extreme disaster occurs, how likely is it that your household could recover fully within 6 months?	Graduation based on the likelihood raises the resilience score	0.14	0.14	0.13	0.18	0.12

INFRASTRUCTURE RESILIENCE SCORE – NEPAL

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	DISADVANTAGED GROUP		OTHER GROUP	
			WOMEN	MEN	WOMEN	MEN
Do you feel your house is safe? (probe: would it stand if a hazard strikes?)	"Yes" to the response increases score of resilience	0.19	0.21	0.29	0.15	0.08
Are there any building codes in place are these enforced?	Graduation based on the type of building codes and its enforcement raises the resilience score	0.26	0.26	0.30	0.15	0.31
Do you feel your house is located in a safe area?	"Yes" to the response decreases score of resilience	0.18	0.26	0.29	0.04	0.04
Has your house become prone to disasters?	"Yes" to the response decreases score of resilience	0.33	0.47	0.31	0.50	0.00
Is your house located in an illegal area?	"Yes" to the response decreases score of resilience	0.98	1.00	1.00	1.00	0.92
Are there land use regulations in place here?	Graduation based on the land use regulation raises the resilience score	0.18	0.07	0.30	0.05	0.29
If you need to leave your village by road or water, are you able to throughout the year?	"Yes" to the response increases score of resilience	0.06	0.00	0.17	0.00	0.04
Do you feel safe using these routes?	"Yes" to the response increases score of resilience	0.13	0.15	0.26	0.04	0.04
What are the conditions of the roads like?	Graduation based on the conditions of the roads raises the resilience score	0.33	0.22	0.53	0.04	0.50
Do you have access to electricity?	"Yes" to the response increases score of resilience	0.94	0.88	0.97	0.96	0.96
How many sources of energy do you have?	"Yes" to the response increases score of resilience	0.61	0.63	0.65	0.56	0.60
Can you cover these costs throughout the year?	"Yes" to the response increases score of resilience	0.93	0.82	1.00	0.92	1.00
Does your energy source pose any health risks/issues (respiratory problems, burning yourself, dodgy connection)?	**Graduation based on the absence of issues increases the resilience score**	0.53	0.32	0.64	0.44	0.74

INFRASTRUCTURE RESILIENCE SCORE – NEPAL (CONTINUED)

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	DISADVANTAGED GROUP		OTHER GROUP	
			WOMEN	MEN	WOMEN	MEN
Do you have access to energy throughout the year?	"Yes" to the response increases score of resilience	0.93	0.88	0.97	0.92	0.96
Do you have access to a phone you can use?	**"Yes" to the response increases score of resilience**	0.74	0.56	0.89	0.69	0.84
Do you have access to internet?	"Yes" to the response increases score of resilience	0.13	0.03	0.20	0.08	0.24
Do you have access to a radio?	**"Yes" to the response increases score of resilience**	0.39	0.26	0.51	0.31	0.48
Do you have access to a TV?	"Yes" to the response increases score of resilience	0.46	0.47	0.51	0.35	0.48
Please think about the last weather event/ hazard that affected your household. Did you know about it in advance?	Graduation based on the anticipation capacity increases the resilience score	0.87	0.90	0.83	0.79	0.96
Do you trust these warnings and act when you receive them?	"Yes" to the response increases score of resilience	0.91	0.82	1.00	0.88	0.92
Do you have access (which includes the availability of resources) to inputs, equipments/ technology that you need to support your livelihood?	"Yes" to the response increases score of resilience	0.74	0.71	0.77	0.65	0.84
Are these inputs/technology environmentally friendly?	"Yes" to the response increases score of resilience	0.13	0.24	0.14	0.08	0.04
Do you have access to safe water for drinking?	"Yes" to the response increases score of resilience	0.71	0.88	0.49	0.88	0.60
Is it available throughout the year?	"Yes" to the response increases score of resilience	0.98	0.94	1.00	0.96	1.00
Do you have access to clean water for cooking and household work?	"Yes" to the response increases score of resilience	0.51	0.41	0.49	0.58	0.60
Do you have to walk further than 500 metres to get water?	"Yes" to the response increases score of resilience	0.98	1.00	1.00	0.92	1.00
Do you fetch water for your household?	**"Yes" to the response increases score of resilience**	0.48	0.65	0.43	0.46	0.32
Does your house have a sanitary toilet?	"Yes" to the response increases score of resilience	0.92	0.85	0.94	0.92	0.96
Do you have a toilet you feel safe using?	"Yes" to the response increases score of resilience	0.13	0.26	0.03	0.23	0.00
Do you defecate outside?	"Yes" to the response increases score of resilience	0.95	0.88	0.97	0.96	1.00
Do you have a functional sewage system in the village?	"Yes" to the response increases score of resilience	0.49	0.59	0.57	0.38	0.36
Are there any structural measures (ie. embankment, flood barriers etc) in place to protect you from natural hazards?	"Yes" to the response increases score of resilience	0.60	0.71	0.54	0.69	0.44
Are they in good condition?	"Yes" to the response increases score of resilience	0.13	0.21	0.09	0.15	0.08
Do you think they are adequate?	"Yes" to the response increases score of resilience	0.09	0.00	0.14	0.00	0.24
Do you know if a shelter/safe place exists for people to seek refuge in before, during or after an emergency?	Graduation based on the existence of shelter increases the resilience score	0.59	0.59	0.37	0.85	0.64
Is this shelter/safe place accessible? (in terms of distance, disability, women friendly, child friendly spaces, older people)	"Yes" to the response increases score of resilience	0.31	0.32	0.26	0.35	0.32
Do you feel safe staying in the shelter/ safe place?	**"Yes" to the response increases score of resilience**	0.33	0.18	0.34	0.27	0.56
If you get an early warning would you go to the shelter?	"Yes" to the response increases score of resilience	0.69	0.62	0.60	0.88	0.72

INSTITUTIONAL RESILIENCE SCORE – NEPAL

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	DISADVANTAGED GROUP		OTHER GROUP	
			WOMEN	MEN	WOMEN	MEN
Do you take part in decisions in your household?	"Yes" to the response increases score of resilience	0.97	0.91	1.00	0.96	1.00
Do you take part in decisions in your community?	**"Yes" to the response increases score of resilience**	0.92	0.74	1.00	0.96	1.00
Do you have the same access to financial resources as your husband/wife/other family members?	**Graduation based on the type of access raises the resilience score**	0.84	0.71	0.91	0.83	0.92
Do you have the same access to training as your husband/wife/other family members?	**Graduation based on the access to training raises the resilience score**	0.78	0.53	0.96	0.75	0.92
Do you have the same access to information as your husband/wife/other family members?	**Graduation based on the access to information raises the resilience score**	0.78	0.50	0.99	0.69	0.96
Do you have the same access to leadership opportunities as your husband/wife/other family members?	**Graduation based on the access to leadership opportunities raises the resilience score**	0.73	0.43	0.94	0.58	0.98
Do you know if there is a union/tehsil Disaster Management committee?	"Yes" to the response increases score of resilience	0.33	0.21	0.57	0.19	0.32
Do you know if there is an official disaster plan at the Union/district level?	**"Yes" to the response increases score of resilience**	0.13	0.09	0.14	0.12	0.16
Is there a disaster management plan at the village level (e.g. those implemented by CSO)?	"Yes" to the response increases score of resilience	0.21	0.15	0.26	0.15	0.28
Do you have access to external assistance following a disaster when needed?	"Yes" to the response increases score of resilience	0.73	0.65	0.57	0.92	0.88
Who provides this external assistance?	Graduation based on the provision sources raises the resilience score	0.52	0.47	0.42	0.62	0.61
Are you allowed to vote according to your own choice?	"Yes" to the response increases score of resilience	0.96	0.88	0.97	1.00	1.00
Do you understand what the role of the local government is?	"Yes" to the response increases score of resilience	0.58	0.38	0.74	0.38	0.80
Do you feel listened to by the local government?	"Yes" to the response increases score of resilience	0.32	0.29	0.40	0.23	0.32
Have you ever had to pay an official representative (including civil servants) for them to support you?	"Yes" to the response increases score of resilience	0.07	0.06	0.06	0.04	0.12
Do you feel journalists can help advocate for your needs?	**"Yes" to the response increases score of resilience**	0.67	0.59	0.69	0.65	0.76
Do you feel that the media report your needs enough?	**"Yes" to the response increases score of resilience**	0.58	0.50	0.61	0.56	0.68

A1.2. Results from the survey: Kenya

ECONOMIC RESILIENCE SCORE – KENYA

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	WITHOUT POLITICAL REPRESENTATION		WITH POLITICAL REPRESENTATION	
			WOMEN	MEN	WOMEN	MEN
Do you earn some cash on average per day?	"Yes" to the response increases score of resilience	0.59	0.40	0.76	0.40	0.81
How much do you earn on average per day?	Graduation based on the income increases the resilience score	0.30	0.20	0.43	0.13	0.45
What is your average household income per month?	Graduation based on the saving capacity increases the resilience score	0.49	0.50	0.43	0.53	0.48
Are your family able to save money during a month?	Graduation based on the saving capacity increases the resilience score	0.20	0.12	0.10	0.32	0.24
How many sources of income does your household have?	Graduation based on the number of sources of income increases the resilience score	0.13	0.10	0.13	0.14	0.15
Does your personal income remain stable throughout the year?	Graduation based on the period of stability over the year increases the resilience score	0.06	0.07	0.02	0.10	0.05
Do you think you will be able to access a loan if you need one?	"Yes" to the response increases score of resilience	0.06	0.10	0.03	0.10	0.00
Who have you taken these loans from? / From whom can you take these loans?	Graduation based on the sources for loans increases the resilience score	0.94	0.85	1.00	0.92	1.00
Are you able to repay your loans on time?	"Yes" to the response increases score of resilience	0.25	0.20	0.31	0.10	0.39
Are you able to access a credit/grant from the government if you want to?	"Yes" to the response increases score of resilience	0.11	0.20	0.31	0.10	0.39
Do you decide how your personal income is spent?	"Yes" to the response increases score of resilience	0.90	0.83	0.97	0.92	0.89
Do you decide how the household income is spent?	"Yes" to the response increases score of resilience	0.86	0.78	0.90	0.90	0.85
Do you own the land you live on?	"Yes" to the response increases score of resilience	0.92	0.93	0.93	0.97	0.84
Do you have to pay to use the land you use?	"Yes" to the response decreases score of resilience	0.87	0.93	1.00	0.90	0.65
Do you have difficulties to access natural resources needed for your livelihoods?	"Yes" to the response increases score of resilience	0.59	0.50	0.90	0.27	0.71
Do you have to pay to access land, forests or waterbodies needed to sustain your livelihood?	"Yes" to the response increases score of resilience	0.90	0.90	0.93	0.83	0.94
Do you have any livestock?	"Yes" to the response increases score of resilience	0.87	0.83	0.79	0.90	0.94
Is the quality of the natural resources you need for your livelihood changing for the better or the worse? (e.g. is the water more polluted? Is the land less productive?)	Graduation based on the improvement of quantity in water sources increases the resilience score	0.34	0.38	0.24	0.48	0.26
Is the quantity of the natural resources you need for your livelihood changing for the better or the worse? (e.g. does the amount of water decreasing? Does the number of livestock decrease?)	Graduation based on the improvement of quantity in water sources increases the resilience score	0.33	0.38	0.24	0.48	0.26
Is there competition over natural resources that affects your livelihood?	"Yes" to the response decreases score of resilience	0.44	0.43	0.14	0.90	0.29
Do you experience increased risk as a result of land/water/forest management carried out elsewhere?	"Yes" to the response decreases score of resilience	0.59	0.73	0.91	0.70	0.85
Do you have access to one or several markets?	Graduation based on the market access increases the resilience score	0.80	0.73	0.91	0.70	0.85
Can you decide where to sell your products?	"Yes" to the response decreases score of resilience	0.96	0.97	0.97	0.90	1.00

ECONOMIC RESILIENCE SCORE – KENYA (CONTINUED)

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	WITHOUT POLITICAL REPRESENTATION		WITH POLITICAL REPRESENTATION	
			WOMEN	MEN	WOMEN	MEN
Can you decide where you buy your products?	"Yes" to the response decreases score of resilience	0.85	0.83	0.86	0.90	0.81
Is your access to the market disrupted when there is a disaster?	"Yes" to the response decreases score of resilience	0.36	0.47	0.17	0.37	0.42

SOCIAL RESILIENCE SCORE – KENYA

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	WITHOUT POLITICAL REPRESENTATION		WITH POLITICAL REPRESENTATION	
			WOMEN	MEN	WOMEN	MEN
Do/did you go to school (formal education) and if yes, which level did you complete?	"Yes" to the response increases score of resilience	0.07	0.04	0.03	0.04	0.15
Have you received any informal education (e.g. religious teaching, reflect center)?	**"Yes" to the response increases score of resilience**	0.92	0.87	0.97	0.97	0.87
Do you have a primary school that is accessible in your area?	"Yes" to the response decreases score of resilience	0.88	0.80	0.86	0.93	0.90
Do you have a secondary school that is accessible in your area?	**"Yes" to the response decreases score of resilience**	0.51	0.10	0.34	0.87	0.71
Do you know if children learn about disasters at school?	"Yes" to the response decreases score of resilience	0.29	0.27	0.31	0.27	0.32
Can you read and write?	"Yes" to the response increases score of resilience	0.23	0.23	0.17	0.17	0.32
Do you read newspapers?	**"Yes" to the response increases score of resilience**	0.23	0.07	0.24	0.30	0.29
Do you receive general information from a formal source (from the government)? (e.g. prices of crops, government schemes, announcements, news)	**"Yes" to the response increases score of resilience**	0.23	0.27	0.17	0.40	0.06
Do you receive general information from an informal source (others like relatives, neighbours)?	"Yes" to the response increases score of resilience	0.63	0.43	0.83	0.57	0.71
Do you rely on traditional or local knowledge for preparing, coping with and responding to a disaster?	"Yes" to the response increases score of resilience	0.43	0.37	0.76	0.23	0.35
What kind of healthcare can you access in your area?	Graduation depending of the healthcare increases the score of resilience	0.71	0.76	0.68	0.72	0.69
Are you satisfied with the health services that are provided to you?	"Yes" to the response increases score of resilience	0.46	0.27	0.28	0.87	0.42
Are you/or your family members able to receive skilled birth attendance in your area?	"Yes" to the response decreases score of resilience	0.48	0.50	0.17	0.87	0.39
Are you /or your family members able to receive reproductive health, Anti Natal Care (ANC), Post Natal Care (PNC) and other health care services as appropriate?	"Yes" to the response increases score of resilience	0.46	0.30	0.38	0.80	0.35
If you need to go to hospital can you get there by your own means (e.g. cash, vehicles)?	"Yes" to the response increases score of resilience	0.48	0.33	0.55	0.37	0.68
Do you need to use a middle man to access healthcare?	"Yes" to the response increases score of resilience	0.95	0.87	0.97	1.00	0.97
Do you have health insurance?	"Yes" to the response increases score of resilience	0.03	0.00	0.00	0.07	0.03
Is there enough food in the household to feed everyone adequately throughout the year?	"Yes" to the response increases score of resilience	0.15	0.03	0.03	0.37	0.16
Do you think your diet is balanced (during a week do you eat grain, vegetables/fruits, dairy, meat/fish/egg)?	**"Yes" to the response increases score of resilience**	0.21	0.18	0.24	0.25	0.18

SOCIAL RESILIENCE SCORE – KENYA (CONTINUED)

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	WITHOUT POLITICAL REPRESENTATION		WITH POLITICAL REPRESENTATION	
			WOMEN	MEN	WOMEN	MEN
Has your diet improved over the last 5 years?	**"Yes" to the response increases score of resilience**	0.38	0.28	0.38	0.40	0.44
Do you need to ask permission from a household member in order to go outside of the village, including the market?	"Yes" to the response increases score of resilience	0.57	0.57	0.69	0.33	0.68
Do you have to be accompanied when you leave the house when you go outside the village (including the market area)?	"Yes" to the response increases score of resilience	0.88	0.80	0.83	0.90	1.00
Do you feel safe to go outside of the village (including the market) whenever you want?	"Yes" to the response increases score of resilience	0.53	0.43	0.69	0.43	0.55
Do you or does someone in your house have to go out of the district for work?	"Yes" to the response increases score of resilience	0.46	0.43	0.48	0.53	0.39
Does migration help you and your family have a better income?	"Yes" to the response increases score of resilience	0.51	0.43	0.69	0.33	0.58
Do you feel safe in the household, when this person migrates?	"Yes" to the response increases score of resilience	0.41	0.50	0.34	0.43	0.35
Do emergencies force members of your household to migrate?	**"Yes" to the response increases score of resilience**	0.48	0.27	0.55	0.63	0.48
Are you aware of social safety net programmes (including government grants, SHG account) that exist in your area and are you a part of any of these programmes?	Graduation depending of the awarness increases the score of resilience	0.59	0.67	0.43	0.80	0.47
Is anyone else in your family a member of a social safety net programme?	"Yes" to the response increases score of resilience	0.33	0.47	0.24	0.33	0.26
Do you find religious groups to be supportive of your daily needs?	"Yes" to the response increases score of resilience	0.41	0.30	0.59	0.13	0.61
Do religious groups support you before, during and after a disaster?	"Yes" to the response increases score of resilience	0.39	0.30	0.50	0.20	0.48
Is domestic violence a problem in your village?	"Yes" to the response increases score of resilience	0.15	0.13	0.10	0.10	0.26
Is child marriage practiced in this community?	"Yes" to the response increases score of resilience	0.06	0.10	0.07	0.07	0.00
Do you fear the chance of rape or sexual harassment in your village?	"Yes" to the response increases score of resilience	0.21	0.27	0.28	0.10	0.19
Does gender based violence increase after a disaster? (for instance sexual abuse, rape, sexual harrassment, verbal or emotional abuse)	"Yes" to the response increases score of resilience	0.26	0.23	0.28	0.23	0.29
Would you report cases of gender based violence to the police/village court?	"Yes" to the response increases score of resilience	0.78	0.73	0.86	0.67	0.87
If a disaster occurs, how likely is it that your household would be well prepared in advance?	Graduation based on the likelihood raises the resilience score	0.31	0.30	0.32	0.31	0.32
Do you know what to do during a disaster and did you receive training?	**Graduation based on the training raises the resilience score**	0.16	0.12	0.14	0.23	0.15
If a disaster occurs, how likely is it that your household could change its source of income and/or livelihood, if needed?	Graduation based on the likelihood raises the resilience score	0.44	0.34	0.53	0.36	0.53
If an extreme disaster occurs, how likely is it that your household could recover fully within 6 months?	Graduation based on the likelihood raises the resilience score	0.33	0.32	0.33	0.34	0.33

INFRASTRUCTURE RESILIENCE SCORE – KENYA

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	WITHOUT POLITICAL REPRESENTATION		WITH POLITICAL REPRESENTATION	
			WOMEN	MEN	WOMEN	MEN
Do you feel your house is safe? (probe: would it stand if a hazard strikes?	"Yes" to the response increases score of resilience	0.82	0.80	0.93	0.83	0.71
Are there any building codes in place are these enforced?	Graduation based on the type of building codes and its enforcement raises the resilience score	0.28	0.29	0.31	0.24	0.27
Do you feel your house is located in a safe area?	"Yes" to the response decreases score of resilience	0.53	0.43	0.83	0.47	0.42
Has your house become prone to disasters?	**"Yes" to the response decreases score of resilience**	0.68	0.53	0.90	0.53	0.77
Is your house located in an illegal area?	"Yes" to the response decreases score of resilience	0.92	0.97	0.83	0.90	0.97
Are there land use regulations in place here?	**Graduation based on the land use regulation raises the resilience score**	0.27	0.24	0.29	0.29	0.25
If you need to leave your village by road or water, are you able to throughout the year?	"Yes" to the response increases score of resilience	0.38	0.53	0.41	0.30	0.26
Do you feel safe using these routes?	"Yes" to the response increases score of resilience	0.50	0.47	0.69	0.33	0.52
What are the conditions of the roads like?	**Graduation based on the conditions of the roads raises the resilience score**	0.28	0.28	0.14	0.43	0.24
Do you have access to electricity?	**"Yes" to the response increases score of resilience**	0.33	0.10	0.17	0.47	0.55
How many sources of energy do you have?	"Yes" to the response increases score of resilience	0.36	0.33	0.44	0.29	0.40
Can you cover these costs throughout the year?	"Yes" to the response increases score of resilience	0.50	0.43	0.48	0.67	0.42
Does your energy source pose any health risks/ issues (respiratory problems, burning yourself, dodgy connection)?	Graduation based on the absence of issues increases the resilience score	0.67	0.70	0.74	0.68	0.56
Do you have access to energy throughout theyear?	"Yes" to the response increases score of resilience	0.39	0.30	0.41	0.40	0.45
Do you have access to a phone you can use?	"Yes" to the response increases score of resilience	0.84	0.90	0.83	0.83	0.81
Do you have access to internet?	"Yes" to the response increases score of resilience	0.32	0.10	0.38	0.33	0.45
Do you have access to a radio?	"Yes" to the response increases score of resilience	0.81	0.83	0.79	0.87	0.74
Do you have access to a TV?	"Yes" to the response increases score of resilience	0.15	0.03	0.10	0.23	0.23
Please think about the last weather event/ hazard that affected your household. Did you know about it in advance?	Graduation based on the anticipation capacity increases the resilience score	0.06	0.03	0.05	0.12	0.03
Do you trust these warnings and act when you receive them?	"Yes" to the response increases score of resilience	0.05	0.03	0.14	0.03	0.00
Do you have access (which includes the availability of resources) to inputs, equipments/technology that you need to support your livelihood?	**"Yes" to the response increases score of resilience**	0.08	0.10	0.03	0.13	0.03
Are these inputs/technology environmentally friendly?	**"Yes" to the response increases score of resilience**	0.24	0.17	0.10	0.50	0.19
Do you have access to safe water for drinking?	"Yes" to the response increases score of resilience	0.57	0.63	0.41	0.87	0.35
Is it available throughout the year?	"Yes" to the response increases score of resilience	0.60	0.63	0.45	0.93	0.39
Do you have access to clean water for cooking and household work?	"Yes" to the response increases score of resilience	0.57	0.60	0.45	0.83	0.39
Do you have to walk further than 500 metres to get water?	"Yes" to the response increases score of resilience	0.40	0.47	0.55	0.33	0.26

INFRASTRUCTURE RESILIENCE SCORE – KENYA (CONTINUED)

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	WITHOUT POLITICAL REPRESENTATION		WITH POLITICAL REPRESENTATION	
			WOMEN	MEN	WOMEN	MEN
Do you fetch water for your household?	"Yes" to the response increases score of resilience"	0.23	0.17	0.21	0.27	0.26
Does your house have a sanitary toilet?	"Yes" to the response increases score of resilience	0.43	0.20	0.34	0.60	0.55
Do you have a toilet you feel safe using?	**"Yes" to the response increases score of resilience**	0.53	0.27	0.48	0.60	0.74
Do you defecate outside?	"Yes" to the response increases score of resilience	0.58	0.37	0.55	0.57	0.81
Do you have a functionnal sewage system in the village?	"Yes" to the response increases score of resilience	0.13	0.03	0.17	0.13	0.19
Are there any structural measures (ie. embankment, flood barriers etc) in place to protect you from natural hazards?	"Yes" to the response increases score of resilience	0.04	0.03	0.10	0.00	0.03
Are they in good condition?	"Yes" to the response increases score of resilience	0.04	0.03	0.10	0.00	0.03
Do you think they are adequate?	"Yes" to the response increases score of resilience	0.03	0.03	0.07	0.00	0.00
Do you know if a shelter/safe place exists for people to seek refuge in before, during or after an emergency?	Graduation based on the existence of shelter increases the resilience score	0.01	0.03	0.00	0.00	0.00
Is this shelter/safe place accessible? (in terms of distance, disability, women friendly, child friendly spaces, older people)	"Yes" to the response increases score of resilience	0.03	0.03	0.10	0.00	0.00
Do you feel safe staying in the shelter/ safe place?	"Yes" to the response increases score of resilience	0.01	0.00	0.03	0.00	0.00
If you get an early warning would you go to the shelter?	"Yes" to the response increases score of resilience	0.06	0.03	0.10	0.07	0.03

INSTITUTIONAL RESILIENCE SCORE – KENYA

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	WITHOUT POLITICAL REPRESENTATION		WITH POLITICAL REPRESENTATION	
			WOMEN	MEN	WOMEN	MEN
Do you take part in decisions in your household?	"Yes" to the response increases score of resilience	0.94	0.97	1.00	0.87	0.94
Do you take part in decisions in your community?	"Yes" to the response increases score of resilience	0.73	0.60	1.00	0.53	0.81
Do you have the same access to financial resources as your husband/wife/other family members?	Graduation based on the type of access raises the resilience score	0.66	0.63	0.78	0.50	0.73
Do you have the same access to training as your husband/wife/other family members?	Graduation based on the access to training raises the resilience score	0.50	0.50	0.69	0.27	0.56
Do you have the same access to information as your husband/wife/other family members?	Graduation based on the access to information raises the resilience score	0.49	0.52	0.69	0.20	0.56
Do you have the same access to leadership opportunities as your husband/wife/other family members?	Graduation based on the access to leadership opportunities raises the resilience score	0.36	0.30	0.55	0.12	0.47
Do you know if there is a union/tehsil Disaster Management committee?	"Yes" to the response increases score of resilience	0.10	0.10	0.03	0.23	0.03
Do you know if there is an official disaster plan at the Union/district level?	"Yes" to the response increases score of resilience	0.07	0.03	0.00	0.23	0.00
Is there a disaster management plan at the village level (e.g. those implemented by CSO)?	"Yes" to the response increases score of resilience"	0.07	0.07	0.00	0.20	0.00

INSTITUTIONAL RESILIENCE SCORE – KENYA (CONTINUED)

QUESTION	QUESTION ORIENTATION	OVERALL SAMPLE	WITHOUT POLITICAL REPRESENTATION		WITH POLITICAL REPRESENTATION	
			WOMEN	MEN	WOMEN	MEN
Do you have access to external assistance following a disaster when needed?	"Yes" to the response increases score of resilience	0.18	0.30	0.07	0.23	0.13
Who provides this external assistance?	Graduation based on the provision sources raises the resilience score	0.12	0.18	0.06	0.18	0.04
Are you allowed to vote according to your own choice?	"Yes" to the response increases score of resilience	0.55	0.47	0.59	0.63	0.52
Do you understand what the role of the local government is?	"Yes" to the response increases score of resilience	0.36	0.40	0.34	0.33	0.35
Do you feel listened to by the local government?	"Yes" to the response increases score of resilience	0.48	0.60	0.38	0.57	0.39
Have you ever had to pay an official representative (including civil servants) for them to support you?	"Yes" to the response increases score of resilience	0.79	0.97	0.72	0.70	0.77
Do you feel journalists can help advocate for your needs?	"Yes" to the response increases score of resilience	0.98	0.93	1.00	1.00	1.00
Do you feel that the media report your needs enough?	"Yes" to the response increases score of resilience	0.53	0.50	0.53	0.53	0.56

Annex 2. Nepal context

Nepal's trends in human development show overall improvement but there are still considerable and often entrenched regional and social inequalities. The country has shown modest economic growth and considerable reduction in poverty rates and income inequality; it remains one of the poorest and slowest-growing economies in Asia, although it is moving towards graduating from low-income to lower-middle-income status (UN CDP, 2018). The Human Development Index (HDI) score for Nepal in 2011 was 0.458, the lowest ranking among the countries of the South Asian Association for Regional Cooperation (SAARC) aside from Afghanistan. Gender disparities in life expectancy, education and income are major challenges across the country, and there are many disadvantaged caste and ethnic groups. Violence against women and girls (including GBV, trafficking and child marriage) is widespread, driven by social, cultural and religious norms.

HDI scores for the Tarai region, which includes Bardiya district where the fieldwork took place, indicated that this region lagged behind in human development, although urbanisation is accelerating growth (GoN and UNDP, 2014; Cosic et al., 2017; The Asia Foundation 2017). Migration makes a significant contribution to household incomes in Nepal and to the country's economy. The government issued more than 3.5 million labour permits to work in foreign countries between 2008/9 and 2016/17. More than 95% of these were to men, leaving women to handle household obligations and risk management (GoN, 2018).

The 2015 Constitution describes Nepal as 'a multi-ethnic, multi-lingual, multi-religious, multi-cultural, and regionally diverse country', and makes a commitment to build an egalitarian society founded on inclusive and participatory principles to ensure economic equality, prosperity and social justice, 'by eliminating discrimination based on class, caste, region, language, religion and gender and all forms of caste-based untouchability' (Nepali et al., 2018: 13). The caste system, which operates across a range of social groupings, is exclusionary for Dalits (the so-called lower castes) and minority ethnic groups (Gellner, 2007).

A2.1 Political and constitutional context

Nepal has suffered from political instability and conflict in recent decades. Civil war from 1996 to 2006 between the government and a Maoist insurgent movement killed almost 17,000 people and displaced 200,000. Following the signing of the Comprehensive Peace Accord in 2006 and the abolition of the monarchy in 2008, Nepal carried out general elections (2008, 2013), promulgated a new Constitution in 2015 and held local, provincial and national elections in 2017–2018 (The Asia Foundation, 2017).

The political landscape remained volatile in post-conflict Nepal, with rivalry between political parties and factions leading to frequent political protests and clashes, although there has been a stable coalition government since

the 2017 general election. Political conflicts centred on implementation of the Peace Accord and the design of the new federal state created by the 2015 Constitution. Underlying these disputes is the marginalisation of some ethnic, caste and regional populations. Social tensions also arise from skewed access to natural resources, especially land, for lower-caste and minority ethnic groups. Land reform has been an important political issue since the 1960s and it was a central issue in the civil war; land issues remain contentious in the post-conflict period (The Asia Foundation, 2017).

The Maoists, and other groups representing marginalised populations, including the Madhesi parties from the Tarai, have demanded ethnic-based federalism. The Tarai is the most densely populated area in Nepal outside Kathmandu, with roughly half of the Nepali population. Its population is a mixture of ethnic, caste and religious groups including Madhesis, Tharus and migrants from other parts of Nepal. Nepali Muslims, who are among the poorest and most marginalised people in the country, have historically lived in villages in the Tarai. Following the Peace Accord, the Tarai experienced increased violence and a proliferation of armed groups calling for greater representation, autonomy and political rights for Madhesis and other ethnic minorities. More than 1,600 people were killed in the Tarai from 2007 to 2012. Tensions between Madhesi groups and others re-emerged in the region after the promulgation of the new Constitution in 2015, with a Madhesi-led blockade of the Indo-Nepal border (The Asia Foundation, 2017).

The 2015 Constitution promotes women's participation in political structures. In the 2017 local elections, the Election Commission mandated that at least 40% of nominees should be female: in the event, 40.96% of those elected were women (Samjhauta Nepal, 2018).

A2.2 Governance and coordination of DRRM under the new federal structure

By its nature, DRRM requires involvement of a range of government institutions with different responsibilities and specialist skills. In Nepal, these include MoHA (and its NEOC and DEOCs), which focuses on emergency planning and response, and DHM, which focuses on EWS operations and information dissemination. The Prime Minister's Relief Fund gives assistance to disaster-affected people. Interviews indicated that there were numerous interactions between different ministries and departments to coordinate DRRM policy and programmes.

The federal, decentralised governance system introduced by the 2015 Constitution has brought both challenges and opportunities. Nepal is in a transitional period in terms of governance. This process is at an early stage – an 'experimental process' as one national key informant put it – and expectations at all levels are high. Stakeholders recognised that local governments' capacities need developing in response to the decentralisation process resulting from the 2015 Constitution: 753 local governments have new budgets to incorporate CCA and DRM into their plans.

The 2017 DRRM Act marks a major progressive shift towards holistic risk management. Hazards and disasters have high priority in national policy, reflected in the government's budget allocation for DRRM. As with the parallel process of federalism, the new DRRM system is at an early stage, with an ongoing need to improve the coherence of local and national policies. Government and non-government respondents were enthusiastic about the new opportunities that the 2017 DRRM Act provides for resilience-building by updating institutions, methods and attitudes, and for local partnerships between government agencies and other actors including NRCS. Although the overall institutional design is in place, it was acknowledged that this work is still at an early stage. Emphasis is starting to shift from policy and legislation towards implementation, with some regulations, roles and responsibilities yet to be defined. There are still questions about how to make the new system effective at local levels.

National and local officials were very aware that there were major operational challenges to building administrative and decision-making capacities at local levels, particularly in terms of the pressure on local capacities, weak coordination and lack of resources. Federal government officials were concerned about how to develop and manage links to local level in the absence of their district offices, restructuring of staff to local authorities and the demand for increased staffing that decentralisation requires. It was also unclear how much funding would be available to support institutional capacities for DRRM at different levels, in addition to supporting operational activities and providing relief to disaster-affected people.

> We are trying to capacitate local government now – after 15 years. For disaster management, disaster risk reduction is strong focus and we have a good mechanism at the federal level. There is a committee at the federal, provincial level and also a Local Disaster Management Committee under the chairmanship of the rural municipality chair person or the Mayor of the urban municipality. Strong mechanism. We also have CBDRR committees in some communities (government KII).

> Prior to the elections it was difficult to interact with government, [due to] issues of transparency and accountability and [it was] difficult to know who to contact. Now we have federal mechanisms which are not institutionalised yet, but they are still being guid[ed] by old ways of working. There is also conflict between elected bodies and officials because of conflicting ways of working. Federal government hasn't been able to deploy staff to the municipal governments and officials are not obeying or agreeing with the government instructions. But things are changing gradually, and it takes time to navigate (NGO KII).

At the time of the fieldwork, different ministries and departments were involved in ongoing discussions about the particular challenge of how to coordinate DRRM policy and programmes. There were no indications of major disputes at federal level about how DRRM should be directed and implemented. Similarly, at local levels there seemed to be shared views in KIIs and FGDs about DRRM priorities and necessary actions. Nevertheless, while the constitutional and legislative changes in Nepal are a clear opportunity to advance a DRRM agenda, implications for GESI in DRRM are less clear.

A2.3 Local level

Local government and NRCS in Bardiya are active in disaster management. The severe 2014 floods appear to have been a catalyst for renewed efforts in DRM in the district, and for rethinking how to manage flooding. This has both operational and social dimensions. The emphasis remains operational, particularly on disaster preparedness and response (e.g. stockpiling, early warnings, training in first aid and search and rescue), and the district has active task force groups on EWS, first aid and search and rescue as well as an active LAPA committee. While the new 2017 DRRM Act provides an opportunity to advance a more holistic approach to DRRM and the inclusion of GESI in local policy and programming, the operating procedures for coordination and communication remain unclear.

Annex 3. Kenya context

A3.1 Economic and social context

Kenya's HDI value for 2017 is 0.590 – which puts the country in the medium human development category, positioning it at 142 out of 189 countries and territories. Between 1990 and 2017, Kenya's HDI value increased from 0.468 to 0.590, an increase of 26.1% (UNDP, 2018). Nearly half of all Kenyans (46.9%) continue to live below the national poverty line (GOK, 2008) – a proportion that has remained relatively unchanged over the past couple of decades. The population of women in the country is 45% and men is 55%. Access to economic resources varies by marital status and wealth inheritance; households headed by single or divorced mothers have fewer economic resources, land, and capital.

Female/male ratios in Kenyan decision-making institutions are highly skewed against women and they experience unfavourable enrolment ratios in primary, secondary and tertiary institutions. The share of income earned by women is much lower than men's share. Kenya has displayed declining GDP per capita, increased poverty rates especially for women, reduced life expectancy, a narrowing of the difference in female/male life expectancy rates, increased child mortality rates and an increase in female/child mortality rates. This deterioration results in an increased socioeconomic burden on women (Kiriti and Tisdell, 2003).

The World Bank's Participatory Poverty Assessment (1996) for Kenya shows that, while 25% of the study population was categorised as very poor, there were nearly twice as many female-headed households (44%) as male-headed households (21%) in that category. The remaining 35% represented male-headed households with no wife present. Greer and Thorbecke (1986a, 1986b), Collier and Lal (1980) and Republic of Kenya (1998) also find that female-headed households account for the high proportion of the poor in Kenya. Mwabu et al. (2000), using the Cost of Basic Needs and Food Energy Intake approaches in computing poverty rates for Kenya, found that poverty rates were marginally higher in female-headed households (41%) than in male-headed households (38%) where husband and wife live together.

According to the World Bank (2013), poverty rates in Kenya are highest in the ASAL regions in the north and north east. Areas with very little annual rainfall, and thus, low agricultural potential have acute poverty. These regions have also been historically neglected, reflecting Kenya's unbalanced geographical development. In 2005, poverty rates in arid regions (78%) were nearly double the poverty rates in medium and high potential agricultural areas (with a poverty rate of 41%).

In Kenya, as elsewhere in the world, GBV against women is a glaring social problem that occurs in private (UNFPA, 2006; UNIFEM, 2012; Ondicho, 2013). There is no reliable statistical estimate of the incidence and prevalence of violence against women, as the majority of cases remain either undocumented or unreported. Violence – whether sexual, physical or emotional – touches the lives

of most women; even those who are not direct victims know female relatives and friends who are survivors of male violence (UNAIDS, 2006). Emerging statistical data from various studies in the country allow us to speculate about the extent of the problem. For example, the 2014 Demographic and Health Survey reported that 45% of women aged 15–49 had experienced physical violence since the age of 15, and 20% of them stated that they had experienced physical violence within the 12 months prior to the survey. The survey further revealed that 14% of the women surveyed reported having experienced sexual violence at least once in their lifetime. Taken as a whole, 39% of women aged 15–49 years reported having experienced physical and sexual violence perpetrated by their spouses – that is, husband or intimate partner. Kimuna and Djamba (2008) report that over 40% of married women in Kenya have been victims of at least one form of family violence in their lifetime.

A3.2 Political and constitutional context

Kenya's political context has been heavily shaped by historical domestic tensions and contestation associated with centralisation and abuse of power, high levels of corruption and post-election violence. The introduction of multi-party elections – in 1992, 1997 and 2002 – has led to low-level outbreaks of violence. For example, disputed elections in late December 2007 spurred outbreaks of violence across the country that killed more than 600 people and led to increased and prolonged ethnic unrest. Though much of Kenya's ethnic violence can be attributed to political manipulation, there are economic inequalities between some ethnic groups, and long-standing bitter disputes over land, particularly in the Rift Valley.

The approval of the new Constitution in 2010 and relatively peaceful elections in March 2013 and 2017 were milestones in Kenya's transition from political crisis. The new Constitution introduced a bicameral legislative house, devolved county government and a constitutionally tenured judiciary and electoral body. Devolution remains the biggest gain, which has seen a new political and economic governance system that has strengthened accountability and public service delivery at local levels. The Constitution is underpinned by a liberal democratic ethos, and contains notions of separateness; for example, devolution aims to foster national unity by recognising 'diversity' but also recognises 'the right of communities to manage their own affairs' and aims to protect and promote the interests and rights of minorities and marginalised communities (Article 174 of the Constitution of Kenya 2010 – GOK, 2010b). Councils of elders have been and are increasingly complicit in the process of the political construction of difference in Kenya – examples of which are increasing by the day (Cottrell-Ghai et al., 2013: 19). Elders' prominent role in the 'homecomings' of political leaders also manifests as a celebration or performance of ethnic difference. They have also played an increasingly visible role in political campaigns, a role well described by McIntosh in her 2009 article 'Elders and "frauds"'.

A3.3 Governance and coordination of DRM

Kenya gives disasters high priority in national policy and budget allocations. Drought management and response is the major challenge, coordinated by NDMA, which conducts vulnerability assessments and triggers response actions. Coordination of disaster management is said to have improved in recent years but still needs work. Under the devolved government system, counties have budgets for CCA activities through local-level committees. Nevertheless, there is a recognised need to improve the coherence of county and national policies, and to develop local governments' capacities.

A3.3 Local level

Wajir has recognised drought as a major disaster in the county, which is seen to have occurred with increased frequency. The county has established various frameworks that address climate change, for example the Wajir Climate Change Fund Act and the CIDP. The county has further set aside a climate change fund (which is 2% of the county development budget) towards adaptation and resilience-building activities; priorities are influenced by communities through Ward Adaptation Committees. However, by 2018, only 20 of the 30 wards had benefited, as these 20 wards had local structures/committees (established by Mercy Corps and Arid Lands Development Focus) to manage these funds. Wajir was the first county in Kenya to launch this fund in 2018.

The BRACED Knowledge Manager generates evidence and learning on resilience and adaptation in partnership with the BRACED projects and the wider resilience community. It gathers robust evidence of what works to strengthen resilience to climate extremes and disasters, and initiates and supports processes to ensure that evidence is put into use in policy and programmes. The Knowledge Manager also fosters partnerships to amplify the impact of new evidence and learning, in order to significantly improve levels of resilience in poor and vulnerable countries and communities around the world.