Vulnerability and Gender Roles in Post-Disaster Societies

A Case-Study of Women in North Lombok, Indonesia, and their Perceptions on Vulnerability, Gender and Recovery

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Abstract

Disasters are considered as major threats to sustainable economic growth and human development and are in large referred to as natural disasters. This is despite the growing recognition of there not being such a thing as natural disasters. Disasters only occurs when a natural hazard impacts upon a vulnerable population. Disaster impacts often are often unevenly distributed, with certain vulnerable groups, such as women, being disproportionately affected. A greater focus on inclusive and preventive disaster risk reduction efforts are needed to achieve sustainable development. To achieve vulnerability reduction through disaster risk reduction, there is a need to understand how vulnerability and disaster risk is perceived in specific locations.

This thesis aims to understand how women in North Lombok, Indonesia perceive their own vulnerability to disasters and what role they can play in local efforts to disaster risk reduction. Through the Pressure and Release Model, this paper investigates what are the underlying vulnerabilities of particularly women in three North Lombok villages. A focus will also be dedicated to considering the local cultural and social context in the North Lombok region and its implications for the residents in daily lives and in the earthquake aftermath.

The research draws on qualitative data collected through in-depth interviews, focus group discussions and participant observation in the context of post-earthquake districts of Lombok. This thesis will claim that local perceptions of vulnerability and disasters are shaped in large by people's experiences, and the cultural and social context of a particular location. These aspects will also be presented as factors that contribute to remaining poverty and social differences within a community. Which is of particular importance in North Lombok region where traditional culture and values are embedded in the social structure of the local communities. Vulnerability is also seen as being linked to the levels of local risk reduction policies and agencies and their implications on physical vulnerabilities in the built environment. The national and local disaster management agencies and efforts will also be studied in terms of pre- and post-earthquake conditions. This will show that the importance of a reliable government at all levels is important to build a resilient community.

Acknowledgements

List of Abbreviations

BNPB – Badan Nasional Penanggulangan Bencana (Indonesian National Board for Disaster Management)

BPBD – Badan Penanggulangan Bencana Daerah (Locan Agency for Disaster Management)

CBDM – Community-Based Disaster Management

CBDRR – Community-Based Disaster Risk Reduction

DM- Disaster Management

DRM – Disaster Risk Management

DRR – Disaster Risk Reduction

FAO – Food and Agriculture Organization of the United Nations

FGD – Focus Group Discussion

GDP – Gross Domestic product

GoI – Government of Indonesia

GWG - Gender Working Group

GBV – Gender Based Violence

HDI – Human Development Index

HFA – Hyogo Framework for Action

IPCC – Intergovernmental Panel on Climate Change

NGO – Non-Governmental Organisation

PDNA – Post-Disaster Needs Assessment

PMI – Pelang Merah Indonesia (Indonesian Red Cross Society)

PTSD – Posttraumatic Stress Disorder

SFDRR – Sendai Framework for Disaster Risk Reduction

UN – United Nations

UNICEF – United Nations Children's Fund

UNDP – United Nations Development Programme

UNISDR – United Nations International Strategy for Disaster Reduction

WB – World Bank

WHO – World Health Organisation

Table of figures

Table of Contents

1. Introduction

Disasters occurring and reoccurring poses major challenges to sustainable development, and often destroys already achieved economic and social growth (United Nations Development Programme, 2008). Kofi Annan (2004) claimed that the problem is undeniable, not only does disasters cause great economic losses, they also cause significant human suffering. While there are no countries that are entirely safe from disaster impacts, the major burden lies on developing countries with limited capacities to respond and reduce hazard impacts (UNISDR, 2002). Wallemacq & House (2018) reports that people in low income, disaster-prone countries are more than seven times more likely to die, and six times more likely to be severely affected than to the equivalent population in high income countries. While the total costs and economic losses globally due to natural disasters in 2018 reached 131.7 billion US Dollars, the 315 recorded natural disasters additionally killed over 11 800 people and affected 68 million people (CRED & UNISDR, 2019).

The perspective on the occurrence of disaster being socially constructed has become a more prominent over the past few decades (Cannon, 2008b) A hazard event cannot be seen as a disaster if it does not impact upon a vulnerable population (Wallemacq & House, 2018). As such, with a larger focus on the vulnerability of people in relation to disasters, women as a homogenous category has become to be seen as one of the more vulnerable groups (Yulfita Raharjo, 2009). Gender relations are highly related to how disasters are experienced by men and women, and if this is not recognized, women and girls' fundamental human rights might be neglected in a disaster situation (Enarson, Fothergill & Peek, 2007, p. 130). Women's vulnerability is linked to underlying factors of inequality in their daily lives, often as a result of patriarchal social systems and as part of traditional cultures and values. What is often neglected in in a disaster aftermath and disaster management contexts are women's capacities and skills to contribute to the rehabilitation and reconstruction of their societies. Leaving them to be seen as merely helpless victims, rather than valuable agents of change (Raharjo, 2009).

In this context, Indonesia is a good example when looking at the number and intensity of the disasters that occurred in the country during the fall of 2018. The events occurring across the country over such a short time span gives a powerful insight into how prone the archipelago actually is to natural events. First, there was the series of strong earthquakes and numerous aftershocks that struck North of Lombok throughout August, which impact and aftermath is

the focus of this study. In September, Palu region of Sulawesi island was struck by a 7.4 earthquake which in turn triggered a tsunami killing over two thousand people (Humanitarian Country Team, 2018). Then, in December, the volcano, Anak Krakatau erupted in the Sunda Strait of West Java followed by a tsunami, affecting over 1600 people. The sky and air of the west part of Java was covered by volcanic ashes for several weeks after the occurrence. (Lisa Martin & Naaman Zhou, 2018).

Earthquakes have been recorded to be the deadliest type of disaster in 2018 causing 45 percent of disaster related deaths throughout the year (CRED & UNISDR, 2018). Indonesia was struck by nine major earthquakes in 2018, with six of them measuring magnitude 6.0 or stronger, the most severe damage from the earthquakes was seen on Lombok and Sulawesi (IFRC, 2019b, p.10). The Lombok and Sulawesi events were also the deadliest disasters globally in 2018 (CRED & UNISDR, 2018).

It has been stated by the United Nations Office for Disaster Risk Reduction (2015a) that for development to be sustainable, disaster management and risk management have to be effective and a priority for countries at risk. Since the 2004 Indian Ocean Tsunami, Indonesia has prioritised disaster management and national response in their development plans, but the somewhat inadequate disaster response of Indonesian Government and the national and local disaster management agencies has caused distrust among the population. During 2018, the Indonesian Government was reluctant in receiving international aid, and often restricted international organisation's involvement in aid and assistance (IFRC, 2019b, p.13). These decisions raised a lot of criticism, and suspicions towards the government in regard to the following 2019 election. Some claimed that the GoI was prioritising political needs over the needs of the population struggling after the disasters, and some called the decision nationalist and isolationist (IFRC, 2019b, p 13).

While gender equality has been high on the Indonesian development agenda, and great strives have been achieved both in rural and urban communities, there are challenges that poses a threat to the progress (UNDP, 2017, p. 6). UNDP (2017) finds that there are gaps between gender equality policies and implementation, and that there are persistent inequalities regarding issues such as poverty and distribution of public services.

1.2. Main Objective and Research Questions

This study is aimed at understanding the situation of women, in the North Lombok region of Indonesia, following the series of earthquakes that struck Lombok island in August 2018.

Particularly, it is aimed at understanding the links between the gender and disaster vulnerability and between gender and the road to recovery.

Although the research focuses mainly on the earthquakes of August 2018, it is important to consider that Indonesia is also prone to several other hazards, such as volcanic activity, landslides floods, storms and tsunamis. Additionally, while the focus is on women's situation, it is recognised that both men and women have different concerns as well as common issues when facing a disaster. It was also important in this study to give a particular focus to the culture and traditional values of the local context. The scope of the research was limited to Tanjung and Bayan Districts, where the main focus was set to the villages, Tanjung, Bayan and Sukadana. These villages were all severely damaged by the earthquakes, but the focus, levels of growth is quite different between them, which makes for interesting comparison and wider understanding of how the same disaster can have different impacts on different people in different societies.

1.2.1. General Research Question:
How does women in North Lombok, Indonesia perceive their own vulnerability to natural disasters and their roles in rehabilitation and disaster risk reduction?

1.2.2. Specific Research Questions
- How are disasters and vulnerability perceived among women in North Lombok?
- How does women in North Lombok perceive their own vulnerability to natural hazards and disasters, in terms of employment and livelihoods and gender roles?
- In what ways can culture and religion affect gendered vulnerabilities?

- What does women in North Lombok villages perceive their role to be in the aftermath of a natural disaster?
- In what ways does women in North Lombok perceive participation and their and contribution to disaster risk reduction efforts?
- In what ways can culture and religion affect the ways in which women are able to participate in disaster risk reduction?

1.3. Brief Outline of Methodology
This study is based on an epistemological standpoint with and interpretive perspective and a constructivist perspective is applied in the ontological orientation. Qualitative strategies were

applied to conduct the research, which was based on a case study design. Qualitative interviews and participant observation were the main methods for data collection. Between February and March 2019, in total 15 interviews were conducted with the majority of them being with women in the communities and their perspectives on vulnerability and their ability to participate in disaster risk reduction. Some of the women were also involved in local institutions that are concerned with women's empowerment in their society. In addition, two interviews were conducted with men on their perspective on women in society. For the analysis, a grounded theory approach was selected, based on the aim of the research being to understand the perspectives and experiences of the people and places being studied.

1.4. Thesis Outline

This thesis consists of seven chapters. The *first chapter* introduces and outlines the main purpose of the study, presents the main objectives and research questions. Further, it presents a brief outline of the methodological approaches applied during the research period. In *chapter two*, an overview of the national and local contexts of Indonesia and Lombok island is presented. A particular focus was given to Indonesia in relation to disasters and Lombok's devotion to culture. *Chapter three provides* an overview of previous literature and key concepts, in addition the theoretical approach that forms the basis of this thesis is presented. *The fourth chapter* presents and justifies the methodological approaches applied in the research, in terms of research design, strategy, methods of data collection and analysis. *Chapter five* will be focused on presenting the situation of North Lombok in relation to the earthquakes and previous studies conducted on the topic in the area. *Chapter six* will present the particular findings from the field work. In *chapter seven*, the analysis will consider the theory, findings and previous literature in the analysis and discussion. Finally, a conclusion will be drawn as well as suggestions for further research.

2. Study Area: Indonesia

The main aim of this study is to understand the effect disasters, such as the earthquakes of August 2018, and the local efforts to disaster risk reduction have on women in rural areas of Indonesia. As such, this section will describe important characteristics of Indonesia's political, economic and social scenes to better understand the relationship between disasters and development. A special focus is put on the main contributing factors to vulnerability in

the form of economic challenges, culture and beliefs, social characteristics of the research areas.

2.1 Indonesia

2.1.1. Land, Population and Economy

Indonesia is a middle-income island-state in South-East Asia region (UNDP, 2018; Siagian et.al, 2013). The country is the largest archipelago in the world, consisting of five major islands, such as Java, Sulawesi, Sumatra, and approximately 30 smaller island groups (Embassy of Indonesia, 2017). In total there are over 17 000 islands in Indonesia, of which approximately 6000 are populated (UNDP, 2018; Siagian et.al, 2013). The land area is majorly covered by tropical rain forests, but there are also estimated to be about 150 active volcanoes in Indonesia. The volcanic ash ejected by the many volcanoes contributes to high agricultural fertility (Consulate General of the Republic of Indonesia, Vancouver, 2017).

In 2019 the population was estimated at over 269 million, which make Indonesia the fourth most populous country in the world (World population Review, 2019; World Bank, 2019). There are over 300 different ethnic groups in Indonesia (WB, 2019), but the majority of the population are Javanese (40%) and Sundanese (15.5%), and Islam is the dominant religion in the country, with over 87% of the population being Muslims in 2010 (World population review, 2019). Indonesia is the largest economy in South-East Asia, with a GDP that grew from USD 857 in year 2000, to USD 3,847 in 2017. Additionally, it is the 10th largest economy in terms of Purchasing Power Parity (PPP), and has reduced the poverty rate to more than half between 1999, to 9.8 percent in 2018 (WB, 2019). However, there are still more than 25.9 million people in Indonesia who live under the poverty line, and, in March 2017, approximately 20.78 percent of the population are vulnerable to falling into poverty (WB, 2019).

2.1.2. Indonesia and Disasters

Indonesia is considered as being one of the most disaster-prone countries in the world. The country is situated in the 'Pacific Ring of Fire' and is ranked as top 35 of countries that face high risks in loss of human lives from multiple hazards. It is measured that over 40 percent of the population lives in risk of natural hazards – that constitute 90 million people (Iwan Gunawan & Olivier Mahul, 2011, p. 6). Indonesia is located where several major tectonic plates collide and cause the regular occurrence of volcanic eruptions, earthquakes, tsunamis

(Siagian et.al., 2013; USAID, 2014, p.1). Additionally, there are also frequent occurrence of landslides, droughts and floods. The hazards that Indonesia is prone to are exaggerated by climate change, poverty, population growth and urbanization (USAID, 2014, p. 1).

Figure 1, below, illustrates that Indonesia is, overall, highly prone to disasters, with the primary hazards being floods (river, urban and coastal), earthquakes, landslides, volcanic eruptions, tsunamis and cyclones (GFDRR, 2019).
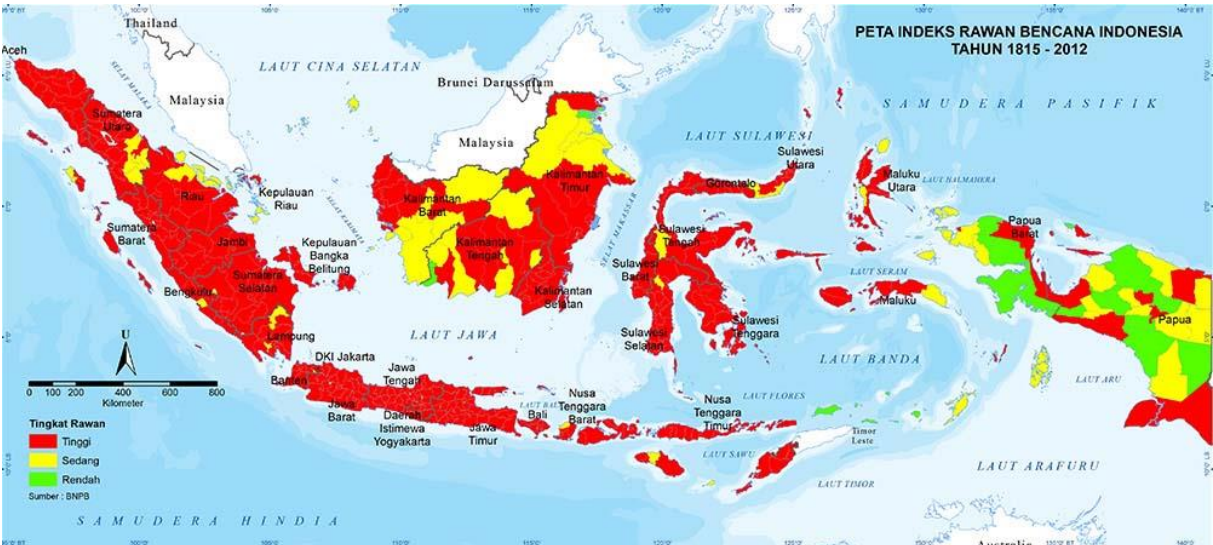
Figure 1: Potensi dan Ancaman Bencana: Potential and Disaster Threats. (Source: Indonesian National Board for Disasters (BNPB), 2018)

After the 2004 Indian Ocean Tsunami, the economic impact was estimated at 1 percent of the national GDP, approximately 4.5 billion USD, while the annual economic impacts of disasters in Indonesia is estimated at 0.3 percent of Indonesia's GDP, or 1.5 billion USD (Gunawan & Mahul, 2011, p 6).

Being one of the first developing countries in Asia to do so, Indonesia created a national action plan for disaster risk reduction (DRR), which requires the implementation of a national financing strategy, that also include disaster risk transfer instruments, such as insurance and budget reserve funds (Gunawan & Mahul, 2011, p. 7).

The Indian Ocean Tsunami of 2004, prompted the Indonesian government to increase their investments in, and refocus their disaster risk reduction strategies (Bimal Paul, 2018). In addition to signing the Sendai Framework for Disaster Risk Reduction there was a change from the National Disaster Management Coordinating Board to National Agency for Disaster Management (Badan Nasional Penanggulan Bencana - BNPB). There was also established

local agencies of disaster management, Badan Penanggulangan Bencana Daerah (BPBD), the thought was to apply a more holistic approach to deal with the disaster risks the country is facing, and emphasising that disaster risk reduction should be everyone's business and the responsibilities should be shared between national and local governments, and civil society (Paul, 2018). Particularly seeing disaster events and impacts in relation to socio-economic development and climate-change adaption (Paul, 2018). Indonesia has committed to disaster risk reduction, utilising the Hyogo Framework for Action and the Sendai Framework for Disaster Risk Reduction (IFRC, 2016, p. 4). Additionally, the Indonesian government and UNDP launched a project in 2007 called Safer Communities through Disaster Risk Reduction (SC-DRR) to assist local communities to integrate disaster risk reduction and awareness courses in their development plans (UNDP, 2007).

2.1.3. Gender Equality Development in Indonesia

The government of Indonesia has made great efforts to reduce gender inequality and promote women's rights, through for example, Committee on the Elimination of Discrimination Against Women (CEDAW), with the intent of eliminating discrimination of women at all levels(UN Women, 2019). In addition to a 2004 legislation on domestic violence and a Presidential Decree in 2000 that demands gender mainstreaming in government bodies concerned with planning and budgeting, and a demand for a 30% quota for women in parliament in 2012 general election (UN Women, 2019). And in 2005 the Government of Indonesia implemented its Zero Tolerance Policy on domestic violence (Bennett, Anfajani & Idrus, 2013, p 147).

Despite making progress in gender equality in sectors such as health and education and voice and agency, Indonesia still faces challenges concerning issues of discriminatory attitudes preventing women to exercise their rights, limited access to justice, economic opportunities, women's participation as negotiators in conflict situations, and female participation is still far lower than the 30% quota (World Bank, 2013, UN Women, 2019). Further women and girls are still largely faced with violence, harassment, and discriminatory and harmful traditional practices (UN Women, 2019). World Bank (2013) argues that these gender gaps can be linked to the increasing tendencies in human trafficking, and policies at sub-national levels that discriminate against women (WB, 2013). Additionally, women in lower-socio economic areas and indigenous communities are especially marginalised and discriminated against due to their social status, class and ethnicity. Factors such as discriminating attitudes towards

women's sexual orientation and disabilities are also posing challenges to achieving gender equality (UNDP, 2017, p. 6).

Women are still less represented in the labour force, but the annual average growth of women joining is higher than that of men. Still women face challenges such as lower quality of work, lower wages, discrimination in hiring and promotion, limited access to resources and a higher level of economic informality (WB, 2013). Women are more vulnerable to personal and financial insecurities as they are more often self-employed or unpaid family workers. This also renders them susceptible to human rights violations and trafficking (WB, 2013).

After the 2004 Indian Ocean Tsunami, the government saw the benefits and needs for a gender responsive approach to disaster management. There was a need to include and consider men and women's rights and capacities equally and to have national and local governments, organisations and institutions address the root causes of gender-based vulnerabilities to ensure good practices in disaster management (WB, 2013).

2.1.4. Kapal Perempuan – Institute for Women's Alternative Education

Established in 2000, the Kapal Perempuan was intended to improve social conditions for women in Indonesia, in terms of justice, pluralism, as well as reduce violence against women. The institution has schools in 25 villages across the country, the majority of them. Their goals include, gaining access for women to attend village meetings concerning development and livelihood programs for women with disabilities (Mampu, 2018)

Kapal Perempuan have developed into 43 villages across the country in a more community-based andinformal manner, through Sekolah Perempuan. The majority of these schools are based in North Lombok, where they aim to empower women. The local village sections have local, female leaders who promote women's rights, and fight for women to gain access to services and resources (Mampu, 2018).

2.2 Local Context: North Lombok Regency, West Nusa Tenggara

West Nusa Tenggara Province consists of 280 islands, of which 32 are inhabited. The two major islands of the province are Lombok and Sumbawa (United Nations Office for the Coordination of Humanitarian Affairs, OCHA, 2014). This study was based in the northern parts of Lombok island.

The North Lombok Regency is still fairly young, as until 2008 the region was still a part of West Lombok (Kabupaten Lombok Utara, 2018, p. 45). North Lombok consist of 33 villages within 5 districts, these being Bayan District, Tanjung District, Pemenang, Gangga and Kayangan (BPS, 2014*a*, p. 11). The two formers being the districts in which this study has taken place. Each village has their own Village Head and Village Head Office which are authorized to manage and regulate government matters and to manage the interests and needs of the local communities through community initiatives and local customs (BPS*a*, 2014, p. 7).
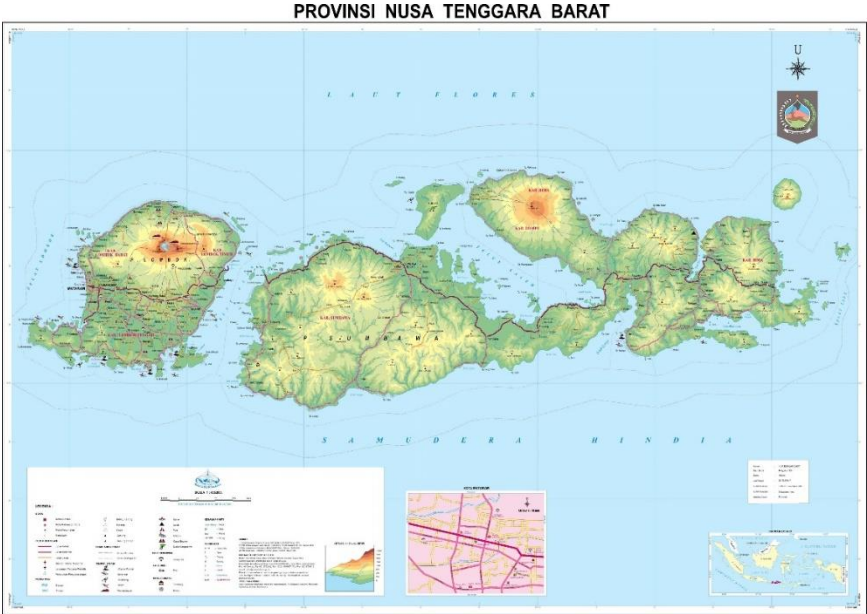
Figure 2: Map of Nusa Tenggara Barat (West Nusa Tenggara). Lombok Island to the left (Source: Government of Indonesia, 2019. https://indonesia.go.id/province/nusa-tenggara-barat).

The population of North Lombok is in 2018 estimated to be at approximately 212 thousand (Kabuplaen Lombok Utara, 2018, p 57). The life of the population in North Lombok is called 'Tioq Tata Tunaq', which is translated into growth, meaningful rule, and love and nurture. The name is meant to be a reflection of the population's responsibility in being grateful and graceful in their use of all resources that they have been gifted from God (Kabupaten Lombok Utara, 2018, p. 58).

2.2.1. Economy and Livelihoods

North Lombok are regularly experiencing economic growth, in which agriculture play a pivotal role, additionally, the unemployment rate is low because of the growth of several economic sectors (Kabupaten Lombok Utara, 2018, p. 89). As agriculture is a large

contributor to the region's economy, several livelihoods are based on natural resources such as fishing and farming. Additionally, civil servants such as teachers and office workers make up a large part of the labour force. Tourism has also gained an important role in North Lombok's economic growth over the last couple of decades (Kabupaten Lombok Utara, 2018, p. 89).

The main source of income in North Lombok's villages is agriculture (32 out of 33 villages), with the majority of the population in 21 villages are earning their wages through food cropping, such as rice, cassava, peanuts and green beans. In 11 villages, the majority of the population earn their income in plantation, i.e. seasonal and annual crops such as coconuts, tobacco, cotton and sugarcanes (BPS, 2014*a,* p. 24;27;28). Another main source of income in North Lombok is within the service sector, such as in health, education and the government (BPS, 2014*a*, p. 23;27). Although rice being the main crop in Lombok's agriculture industry, most of the planting and harvesting is done by hand in a large number of small crops, rendering the cultivation and production of rice to remain small-scale (Maria Platt, 2017). While tourism is turning out to be another of the islands main industries, many, especially in rural villages, experience difficulties in entering this line of work because of higher requirements regarding education and specialised knowledge (Platt, 2017). Additionally, people in rural areas often have difficulties in obtaining work and well compensated jobs in the formal sector, many find the opportunities in migrant work in Malaysia, Singapore or the Middle East desirable (Platt, 2017).

2.2.2 Gender in North Lombok

Women in Lombok are in large bound by traditional gender roles as homemakers and caregivers (Heather Cole, 2018, p.9). Maria Platt (2017) additionally states that there are gendered notions about employment in North Lombok. Employment for men is common within transportation and manual labour, which also increase their overall mobility. Women are expected to take care of houses, children and family, or they keep shops selling household supplies (Platt, 2017). Also, there are stigmas to certain types of work for women, such as in tourism, which is a growing industry in North Lombok. The view is that foreign tourists bring with them Western culture which is seen as being more vulgar in many ways, and that Lombok women can be influenced in put their reputation on the line in questionable manners (Platt, 2017).

According to Cole (2018) Lombok women are significantly concerned with their reputation and modesty, and their social and economic status and well-being are often linked to their marital status and how they are perceived as a wife. Lombok has one of the highest rates of child marriage in Indonesia, in particular girls between 15-19 years of age (UNICEF, 2019). An estimated of 32 000 girls in Lombok are married off young, which equals 16.3 percent of girls that age on the island (UNICEF, 2019). Additionally, 23 percent of women/girls who have married young are mothers before the age of 18 (Cole, 2018, p. 9). However, the Government of Indonesia has implemented national and local regulations and law that will subject anyone who facilitates child marriages (children under 18) with sanctions (Cole, 2018, p 9). Platt (2017) claims that Lombok also has one of the highest divorce rates in Indonesia, due to the casual means of which divorce can be initiated, such as text messages. In Lombok, men are the ones with authority to initiate divorce, and poor women have often been seen as being left especially vulnerable to the casual and sudden divorce methods used by their husbands (Platt 2017).

Many women are dependent on their husbands to receive information from community meetings, as men are more likely to engage and participate (Cole, 2018). Additionally, women's income earning activities are often seen as supplementary and not necessarily the main income of the family which in turn leave the majority of income and family expenditure under male control (Cole, 2018). Women's negotiation power is also weaker than men's through other aspects of the household. Men are allowed to engage in polygamous relationships, restraining and stretching family resources wide (Cole, 2018, p. 9). On that note, infidelity is also an issue for women in Lombok. If their husband is unfaithful, they are often seen as having failed in their role as wives (Cole, 2018). Additionally, between husband and wife and within patriarchal norms, the man is seen to have a right to sex, and it is seen as the wife's duty to fulfil these rights. As such, domestic, sexual abuse might be difficult to recognise and discuss. Bradshaw (2004) also found that in rural communities, sexual and domestic violence is often not reported due it is seen as being a private manner and connected to shame.

2.2.3. History and Religion of the Sasak Tribe in Lombok

The religion and history of the Sasak people in Lombok gives an insight into how they deal with daily lives in their society, but also their understanding of the events that transpired in August. Therefore, this section will give a brief overview of how religion and historic events have shaped the villages in North Lombok over the years.

2.2.3.1 The History of Sasak and Sasak Islam
The majority of the population in Lombok belongs to the Sasak tribe, which constitute approximately 90 per cent of the island's population (David Harnish, 2006, p.5). 'Sasak' can be roughly translated into 'the original inhabitants of the islands' (Sasak Islands, 2019). Maria Platt (2017) states that religion plays a key role in forming Sasak identity and that 'In Lombok, to be Sasak is considered Muslim' (Maria Platt, 2017). Sven Cederroth (1996) explains that Lombok had been under oppressing and exploitative Balinese and rule for almost two centuries, their culture and religion was thus under a Hindu-Buddhist influence when they were conquered by the Dutch in the late 1800s. When Islam emerged on Lombok towards the end of the 16th century, the religion was quickly and widely accepted by many Sasak communities as they sought for a sense of collective identity (Cederroth, 1995, p 10; Platt, 2017).

While most of the Sasak population are orthodox Muslims (Cederroth, 1995, p. 9; 1996), Platt (2017) argues, that when it comes to religion on the island, it is important to consider the different levels and ways of which people engage with Islam, and the two main versions of Islam that exists on Lombok, namely the *Waktu Lima* and *Wetu Telu* (Platt, 2017). Waktu lima, meaning 'five times' (referring the numbers of prayers per day), generally follow the orthodox Islamic fundamentals and is the most widespread throughout Lombok (Cederroth, 1995; 1996; Platt, 2017). On the other hand, wetu telu, meaning 'three times', is a more syncretised version of Islam, with prominent animistic and indigenous elements, and bearing traces of Hinduism and pantheism (Cederroth, 1995;1996, Platt, 2017). In the 1960s, the majority of the Sasak population of North-western Lombok were a part of Wetu Telu (Cederroth, 1996). However, after the coup d'etat in Jakarta in 1965 and the following conflicts surrounding the emergence of communism in the country, many Sasak, would out of fear of being labelled as Communist 'aligne[d] themselves with a more readily identifiable form of Islam' the waktu lima (Platt, 2017). Now the previously widespread traditions of wetu telu is mostly constrained to the more remote northern parts of Lombok (Platt, 2017).

Religion plays an important role in both the daily lives of the Sasak, and the highly valued traditional ceremonies of the Sasak population (Platt, 2017; Cederroth, 1995). Although most Sasak follow an orthodox form of Islam, life cycle ceremonies and events such as weddings and births are still influenced by the syncretic nature of Sasak Islam which is mostly practiced in the rural parts of Lombok. Sasak Islam is unique in how it combines the Islam with animist and Hindu-Buddhist elements (Cederroth, 1995. p. 2). Additionally, Islam forms the foundation of how the Sasak understand and experiences of their different relationships such as with their parents, in their marriage or gender roles that are based on religious beliefs (Platt, 2017). Sasak Islam's syncretized nature makes it dynamic and is also important in how the *adat* is perceived within the villages. Adat can both be understood as custom and traditions or more specifically a form of informal localised authority that is based on unwritten world views, rather than formal laws and regulations (Platt, 2017).

The importance of religion in Lombok can also be illustrated by Platt (2017) and her description of the pilgrimage to Mecca. Lombok have, despite the high poverty rates, the highest proportion of pilgrims throughout Indonesia. Several impoverished farmers often sell parts of their land to be able to finance the pilgrimage. No matter a person's social or economic situation, their status is automatically improved if they have completed a pilgrimage (Platt, 2017).

3. Literature Review and Theoretical Framework

In this chapter previous literature on the intrinsically linked topics within disaster research will be reviewed. Topics such as disaster and natural hazards, and how it has an impact on sustainable development will be explored. Further the evolvement of Disaster Risk Reduction (DRR) from a top-down management strategy to an approach focused more on the community and local participation, and different perspectives on participatory development will be outlined. Additionally, the concepts of vulnerability, gender and culture in relation to disasters will be elaborated. Lastly, social vulnerability will be presented as the theoretical framework for this study.

3.1 Disasters and Sustainable Development

A disaster is an extreme event, sometimes unforeseen and often with significant damages on people and places (Khan, Vasielscu & Khan, 2008, p 43), or as defined by UNISDR **"*a serious disruption of the functioning of a community or a society causing widespread human,*

material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources". What constitutes a disaster is the combination of hazards, vulnerability of people and places, and a lack of capacity to reduce the possibly unfavourable outcomes of risk. In this sense, a disaster "is a function of the risk process" (UNISDR, 2004, p 16).

Cannon (2008b) argues that one of the most common understandings of disasters still to some degree lean towards disasters being natural in themselves (Cannon, 2008b, p. 350). However, there has been a growing recognition of that "there is no such thing as natural disasters, only natural hazards" (Twigg, 2004; UNISDR, 2004). UNISDR (2009) defines natural hazards as a *"natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption or environmental damage"* (UNISDR, 2009, p.20). In this sense, a disaster is triggered by hazards (Cannon, 2008b, p 350), and it becomes a disaster because of the impact the hazard poses upon a vulnerable society or community (Khan, et.al, 2008; Twigg, 2004). A disaster and its impacts can, as such, be seen as the result of the social, political and economic conditions in the affected community. Thus, disasters are in large socially constructed (Cannon, 2008b, 350). Similarly, Kofi Annan points out in his foreword to *Living with Risk* (2004) that natural hazards will always pose a threat to communities, however, the human impacts of a hazard is largely the result of human activity. And while disasters have always co-existed with civilisation (Khan et.al. 2008, p. 43), "most natural hazards may be inevitable, disasters are not" (UNISDR, 2004, p.37).

Twigg (2004) refers to Didier Cherpitel (Secretary General of IFRC)
"Disasters are first and foremost a major threat to development, and specifically to the development of the poorest and most marginalised people in the world. Disasters seek out the poorest and ensure they stay poor".

According to Twigg (2004), there was previously, until the 1980s and 1990s, a misconception of people's ability to recover from disasters quickly. Disasters were merely seen as brief interruptions of a 'linear development process' that would continuously improve living-standards. There has over the past few decades been a growing realisation that disaster can severely affect people's lives long-term and that vulnerabilities themselves can arise from the development process (Twigg, 2004, p. 16). Khan et.al (2008) points out that in addition to causing losses and exceeding people and communities' ability to cope with the effects of the event, that 'life is paralyzed' by disasters. The economic losses caused by disasters, and the

demand for resources to be allocated to rebuilding, makes it more difficult for developing countries to rise out of poverty (Annan, 2004).

Between 1998 and 2017 geophysical and climate-related disasters led to 1.3 million people losing their lives, while 4.4 billion people was injured, left homeless or displaced, or needing emergency assistance (Wallemacq & House, 2018, p. 3). The economic losses in countries affected by disasters totalled towards 2900 billion USD, and forced 26 million people into poverty (Wallemacq & House, 2018, p. 3). Additionally, Wallemacq & House (2018) claims that the number of disasters per year between 1998 and 2017 has doubled from 329 from 165 disaster event per year during the previous 20-year period, 1978-1997.

Gro Harlem Brundtland (1987) claimed that "humanity has the ability to make development sustainable" by ensuring "that it meets the needs of the present without compromising the ability of future generations to meet their own needs". In a similar line of thought, development needs to be 'risk informed' to build resilience, reduce economic losses and to be sustainable, in particular for the development of low-income countries (Mizutori & Guha Sapir in Wallemacq & House, 2018, p 1).

Disasters often has a more severe impact on the vulnerable people and places of society and poses as obstacles for achieving sustainable development goals, what makes people and places vulnerable is often exacerbated by inequality, poverty, weak governance and poor management of development efforts (UNISDR, 2004; UNISDR, 2019). And a country's level of capacity to prepare for, financially, and respond to disasters significantly determines the losses it may suffer due to a disaster, whether they'd be human losses or loss of assets (UNISDR, 2019, p. vi-vii).According to UNISDR (2019) and Wallemacq and House (2018) people in low-income countries are more than six times more likely than people in high-income countries to be affected by disasters in terms of injuries, homelessness, displacement and evacuation and need of assistance. Additionally, disasters from 2000 onwards, have killed an average of 18 people per million in high-income disaster affected countries, compared to 130 in low-income nations (Wallemacq & House, 2018, p. 3).

Wallemacq & House (2018) contends that as a result of higher number of extreme weather events caused by climate change, and as long as it is economically favourable to continue development in hazard-prone areas such as earthquake zones, and floodplains, disasters will further largely challenge the achievement of sustainable development. UNISDR (2015a)

states that sustainable development will not be sustainable if risk management is not set as the "new normal" in the development discourse.

3.2 Disaster Risk and Disaster Risk Reduction

Disaster risk can be defined as *"the potential disaster losses, in lives, health status, livelihoods, assets and services which could occur to a particular community or a society over some specified future time period"* (UNISDR, 2009). This definition derives from the idea that disasters are the result of risk being a constant presence (UNISDR, 2009). Vulnerability should not be identified with high levels of risk, rather as a contributing factor, and both the drivers of risk and risk itself are integral and connected in the understanding of risk (UNISDR, 2019, p. 157). In that sense, risk can be seen as a result of the interactions between a potentially damaging event – or a hazard -, or human activities, and to what degree the exposed elements are receptive to the potential event – the vulnerability of the exposed people and places (UNISDR, 2004; UNISDR, 2019). The concept of risk can be illustrated by the commonly used equation:

$$\text{Risk} = \text{Hazard} \times \text{Exposure} \times \text{Vulnerability}$$

The Sendai Framework of Disaster Risk Reduction recognises the need of strengthened disaster risk reduction at all levels, in particular based on continuous increase of disaster risk in addition to higher numbers of exposed people and assets (UNISDR, 2015b, p 21). UNISDR defines Disaster Risk Reduction (DRR) as "the concept and practice of reducing disaster risk through systematic efforts to analyse and manage the casual factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse effects (UNISDR; 2004; UNISDR, 2009).

In other words, UNISDR (2018) states that DRR, through an 'ethic prevention', aims to minimize impacts affected upon people by natural hazards. The broad idea in DRR is to use development, the application of strategies, policies and practices as a way of reducing vulnerability and disaster risk (Twigg, 2004, p 13). In that sense, there are several disciplines within DRR to be considered. First, disaster *mitigation* which consists of all efforts and activities of reducing the impacts of (potential) disasters (Twigg, 2004; UNISDR,2004; Khan

et.al. 2008), further, there is disaster *preparedness* which is about planning and taking actions before a disaster occurs, actions such as planning evacuations and ensuring that food supplies are sufficient (Twigg, 2004; UNISDR, 2004; Khan et.al. 2008). In addition, Khan et.al. (2008, p. 48) includes the aspects of disaster response, which consists of the efforts to "minimise the hazards created by a disaster", and recovery, which aims to "returning the community to normal'. All these elements of risk reduction falls under what Khan et.al (2008) refers to as the Disaster Management Cycle, which, in which all the activities and efforts that are taken to avoid, reduce impacts or recover from disaster losses. Similarly, David Alexander (2002) finds that because disasters seem to be reoccurring, it is possible to see a pattern, or a cycle, that can be categorised as different stages of mitigation, preparedness, response and recovery.

Disasters was, historically perceived as natural and 'one-off events', but there as emerged an understanding that there are underlying economic and social factors causations of impacts, and if risks are left "unmanaged (or mismanaged) for a long period of time lead to occurrence of disasters" (Suvit Yodmani, 2000, p. 1-2). According to UNISDR (2015a) that due to the fact that the number of exposed people and places are increasing in a higher rate than the decrease of vulnerability, new risks and further losses to disasters are arising, particularly at the community level. The Sendai Framework for Disaster Risk Reduction (UNISDR, 2015b) recognises the importance capacity building in communities and bridging the phases of relief, recovery and development to ensure preparedness and risk reduction both short- and long-term. Additionally, the framework constitutes that development is more likely to be sustainable with effective strategies of disaster risk reduction (UNISDR, 2015b, p 10). DRR practices have shifted from primarily being top-down approaches to becoming a more intersectoral and decentralised issue (Shaw, 2012; Twigg, 2004; Yomandi, 2000). On that note, Alexander (2000), finds it important to consider the level of economic development and resources available to the different communities to assess what type of measures are applicable, and to a certain degree avoid the so-called 'all-hazards approach'.

3.3 Vulnerability
Although the vulnerability can be defined in many ways, the more general definitions such in Cutter (1996) and Cutter Boruff & Shirley (2003) vulnerability to environmental hazards means "the potential for loss". Or Wisner Blaikie, Cannon & Davies (2003) defines vulnerability as *the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard*

(an extreme natural event or process)." According to Adger (2006), Cannon (2008a) and Cardona, Birkmann, van Aalst & Fordham (2012) vulnerability can be seen as the combined effects of abilities, or lack thereof, to adapt to shocks, both in advance of an event or to cope with the aftermath. Cannon (2008a) claims that the term "vulnerability has become one of those slippery terms", in which he means that it loses any significance, and that it is difficult to identify who is actually vulnerable, what makes them vulnerable and what they are vulnerable to. Additionally, Cannon (2008b) argues that while it is commonly acknowledged that vulnerability is socially constructed, the use of the term has been "de-politicised" and neglects the power relations that creates vulnerability. In this sense, it is important to consider vulnerability in terms of global social and environmental processes (Adger, 2006; Cardona et.al. 2012),

Cannon (2008a), suggests that one should not confuse poverty and marginalisation with vulnerability, and Twigg (2004) points out that vulnerability is not only due to poverty "but the poor tend to be more vulnerable", often due to economic constraints, leaving people with little choice other than to live in affordable but risk-prone areas. Additionally, Twigg (2004) calls vulnerability "the human dimension of disasters", stating that vulnerability is not something natural, but rather the result of all dimensions of society, such as political, economic and social factors, that shapes people's lives and the places they live. Similarly, Khan et.al. (2008), divides vulnerabilities into physical and socio-economic spheres. Physical vulnerabilities are determined by the built environment and the people around it, it considers what and who can be affected by a hazard. The aspect of socio-economic vulnerabilities is based on factors such as inequalities, poverty and marginalisation. The intensity of a hazard impact can be determined by the socio-economic circumstances of the affected people.

Cannon (2008b) states that disasters and vulnerability are socially constructed and differentiates between "strong" and "weak/innocent" social constructions of vulnerability, in which strong means that people are forced, by social structures in their society, to live in risky areas, and are thus more likely to be impacted on by disasters. "Innocent" disasters, or 'weak' social construction is based on elements of choice, people who are affected by disasters are not at risk or in hazard-prone areas as a result of exploitative processes and people are not divided into vulnerable groups because of class, ethnicity or gender etc. Rather, they are vulnerable because of "class-neutral socially-constructed processes", and if they live in risky areas it is because they choose to because of their livelihoods.

As Cutter (1996) points out "vulnerabilities still means different things to different people", and perceptions of risk and vulnerability is different for those living in risk areas and those on the outside (Cannon, 2008a; Heijmans, 2001). The poor, who are often labelled as the most vulnerable to disaster risk, will in many cases not prioritise the risk posed by hazards (Cannon, 2008a; Heiljmans, 2001). Rather, they often face greater challenges in their everyday lives, such as food shortages and diseases (Heijmans, 2001, p. 10), and are not as concerned about the less prominent possibility of being affected by a disaster event (Cannon, 2008a, p.16). UNISDR (2004) states that vulnerability and risk perception is also dependent on available information about risk, people can be rendered more vulnerable if they are not aware of potential risks and hazards that could affect them.

The people who are deemed vulnerable often are not a part of decision-making processes and vulnerability assessments (Adger, 2006; Heijmans, 2001), and risk reduction projects will in many cases base their efforts on assumed perceptions of risk behaviour as being universal among different populations and groups of people (Heijmans, 2001, p. 10). Development and underdevelopment can both be generators of vulnerability (Collins, 2009, p. 29) As such, in a post-disaster situation can offer an opportunity for re-evaluating social, economic, environmental and equality development policies to increase sustainability (UNISDR, 2004, p 13).

3.3.1 Resilience

Although resilience has not earned its rights as an own paradigm in disaster research (Alexander, 2013; Manyena 2006), this study considers it important, also, to consider the concept of capacity, or resilience. The term 'resilience' derives from the Latin word 'resilio' which means "to jump back", and in a disaster context resilience can be a foundation for understanding an affected community's ability to recover from a disaster and how to strengthen such abilities (Simbabala Bernard Manyena, 2006, p. 434). Wisner et.al. (2003) argues that the concept of vulnerability in many instances portray people and communities as weak helpless victims that are incapable of self-protection (Blaikie et.al. 2003, p. 14; Cardona et.al, 2012, p. 72). However, capacity and vulnerability are not necessarily completely opposite concepts; the same factors that creates vulnerability – social, economic, political and environmental – can also be used as a source of capacities to reduce vulnerability. Additionally, while people and communities can be both vulnerable and possess capacities as well (Cardona et.al, 2012, p. 74). Cannon (2008a) recognises that resilience encompasses the

condition of people and places before a disaster strikes, in addition to how they are able to deal with and respond to a disaster event.

Capacity is, like vulnerability, dynamic, and will vary according to circumstances. The understanding of capacity, as presented by Cardona et.al (2012), suggests that people do not necessarily do anything to reduce the risk of hazards as they occur. Rather, they use their capacities to anticipate hazard events, and make efforts to rebuild and mitigate the impacts of potential future events (Cardona et.al, 2012, p 74).

Whether vulnerability and resilience are the opposite of each other or interrelated concepts within a vulnerability structure is somewhat unclear (Cutter, Barnes, Berry, Burton, Evans, Tate & Webb, 2008; Manyena, 2006). According to Cannon (2008a) the level of vulnerability in a community can reflect the level of resilience, which is due to the government and their dealings with the social components in a society. Cutter et.al (2008) suggests that if vulnerability refers to characteristics in a social system that can be seen as the foundation for susceptibility to harm, while resilience can be defined as "the ability of a social system to respond and recover from disasters and includes those inherent conditions that allow the system to absorb impacts and cope with an event, as well as post-event, adaptive processes that facilitate the ability of the social system to re-organise, change, and learn in response to a threat" (Cutter et.al, 2008, p. 600). Cutter et.al. (2008) then suggests that they are opposite, but still interrelated concepts. Gaillard (2007) finds that although the two concepts builds upon the same elements – social, economic, cultural and political factors -, they, in fact, do differ in that vulnerability solely refers to people's susceptibility to suffer from the impacts of a disaster, which is what constitutes the way that a hazard becomes a disaster. Resilience, on the other hand, refers to the ways in which people deal with a disaster through capacities and capabilities (Gaillard, 2007, p. 523). In that sense, a resilient community can provide a linkage between the "(dynamic) adaption and (static) resistance" (Alexander, 2000, p. 2714). Manyena (2006) also finds that while vulnerability mostly focuses on the aspect of reduction, resilience allows for a focus on building something.

3.4 Culture and Disasters
The term 'culture' can be defined in infinite ways but can in general be understood as a way of talking about behaviours and actions that maybe otherwise would seem difficult to comprehend (Bankoff, Cannon, Krüger and Schipper, 2015, p. 2). World Bank (2018) suggests an understanding of culture as the "social norms, values and practices that underpin

social identities and behaviours, creative activities, and cultivation of imagination". While UNESCO (2017) offer a definition of culture as "that complex whole which includes knowledge, beliefs, arts, morals, laws, customs, and any other capabilities and habits acquired by [a human] as a member of society".

Bankoff et.al (2015) and Cannon (2008a; 2008b) believes in the aspect of giving greater considerations to the 'cultural' and psychological factors in a disaster and vulnerability context, in addition to group behaviour and religion (Cannon, 2008b, p. 355), because the perspectives on vulnerability and the possible reduction of it differs between those who come from the outside and those who live their lives in hazard-prone areas (Bankoff et.al. 2015; Cannon, 2008b). Culture has only recently been included in the disaster discourse, the reason was that disasters have, historically, often been seen as 'an act of god' or something from 'supernatural forces' (UNISDR, 2004, p. 21). There is now a broader understanding of the cultural and social components that plays significant roles in constituting a disaster (UNISDR, 2004, p 21). Through culture, people can develop methods to adapt and themselves and their environment in a way that 'normalises' the hazard threats (Bankoff et.al. 2015, p. 4-5;9).

Amartya Sen (2017) states that the resilience of the social systems and contexts in which a disaster happens are greatly connected to cultural aspects. Because "… cultures frame people's relationship to others in their society and the world around them, including the natural environment and condition their behaviours". In communities where hazards pose a frequent threat there are evidence in the built environment, seen in construction materials and design that can withstand seismic and climatic activities (Bankoff et.al. 2015, p. 9). For example, on the Pacific Islands, where traditionally, the building materials used was light but strong and flexible, so that they could withstand heavy rains and tremors caused by earthquakes (UNISDR, 2004, p 6). Additionally, many communities develop practices and rituals to help them overcome the emotional challenges in living with risks (Bankoff et.al, 2015, p. 9). A strong cultural capital is likely to help to enable a community to recover from a disaster, as culture provide shared values, memories, skills and traditions, and it creates a strong social connectedness (Sen, 2017, p 2).

According to Rakhman (2018) concrete buildings and homes have become the norm in Lombok. However, while such brick- and concrete houses were most severely damaged during the earthquakes, the more traditional buildings made of bamboo and wood were more likely to stand strong. Indigenous architecture is often portrayed by the Indonesian

government as a prevalent aspect of poverty. Rakhman (2018) suggests that the shift away from traditional houses has left many people in Lombok vulnerable, as bamboo and wood are more flexible materials and are able to withstand and sway with the movements of earthquakes, brick houses are not flexible and are more easily destroyed. This trend was seen around villages across North Lombok were most of the houses still standing was those of traditional material and structure (Rakhman, 2018).

Bankoff et.al. (2015) finds that many people, when not forced by power relations and poverty, ignore the risks that people from the outside consider as significant, and instead choose to live in risk-prone places for good reasons, as they are unable to do anything about the risks. And, UNISDR (2004) claims that people feel a strong attachment to their place of living. Similarly, according to Cannon (2008b) "people trade off the risks they face with the benefits of their livelihood and often desire to live in a place they are accustomed to". The attachment to places, livelihoods in combination with cultural beliefs allows people to cope with the element of risk in their lives (Bankoff et.al, 2015, p. 8).

Capacity building has become an important aspect in disaster risk reduction, but a reason for the continuous hazard vulnerability of people might be due to the lack of cultural considerations in DRR strategies (Bankoff et.al. 2015, p.1). Including social and cultural aspects of risk and allow for people's experiences and adaptive measures to hazards become more prominent in risk reduction, can provide a better understanding of as to why people respond the way they do to hazards and the aspects of risk (Bankoff et.al., 2015, p. 1). Additionally, Sen (2017) finds that cultural considerations that promotes social equality are beneficial to DRR efforts, in that it allows for a sense of stability and normalcy in an abnormal situation.

Culture is playing a significant role in the social fabric of a community, and might enable exploitation, manipulation and using traditions as an excuse to legitimise gender inequalities and marginalisation of sub-groups in the community (Sen, 2017, p 4). And according to Jean-Christophe Gaillard and Pauline Texier (2009) the aspect of religion poses a similar problem in DRR in that it falls short in concerns of religious diversity and provides a single, one-sided model, provided and based on Western policies. As such, culture should be included in post-disaster efforts in a way that promotes social equality and right-based practices (Sen, 2017, p. 4). McClure, Allen & Walkey (2001) and John McClure (2017) explains that if there is an underlying fatalistic belief in relation to disasters in a society, disaster preparedness is less

likely to be a concern, as people believe they cannot do anything about it. Additionally, McClure et. al (2001) and McClure (2017) draws examples from earthquake impacts and causes and differentiates between controllable factors and distinctive factors – such as a damaged buildings structure, and uncontrollable factors and widespread damage – such as the magnitude of the earthquakes. McClure (2017) further explains that if there is only one building in a street that has suffered major damage, it counts as controllable factors, as the building structure can be altered. However, if there are several damaged houses on a street, it is seen as uncontrollable and not something that can be changed. As such McClure (2017) suggest that the ways in which people respond to a potential hazard is related to their understanding of the social, physical and aspects of the built environment, which are factors that contribute to the impacts of a potential hazard event. And that reducing and overcoming the fatalistic perspectives on hazards is the essential to increase disaster preparedness in societies (McClure, 2017, p. 2).

3.5 Gender in the Disaster Context

Khan et.al. (2008) argues that "disasters occur rapidly, instantaneously and indiscriminately", while Neumayer & Plümper (2008) suggests that disasters have different impacts on different people. Additionally, the impacts imposed on people in a disaster is not solely a natural element (Neumayer & Plümper, 2008), it is decided by political, economic, social and cultural factors, in which the poor are most at risk (Wiest et.al. 1994, p. 11). When a disaster occurs, those who are impacted upon are often pooled into a homogenous group as 'victims', all the while there are, within such a group, considerable differences including gender, class, ethnicity age, abilities and disabilities (Maureen Fordham, 1999; Keiko Ikeda, 2009). Additionally, men and women experience disasters differently and have different (gender) concerns in times of crisis, while women and girls are affected upon disproportionally in terms of health, security and livelihoods (Ikeda, 2009, p. 65). Alice Fothergill (1998) contends that women's vulnerability is a result of their "relative lack of power and status".

Enarson, Fothergill & Peek (2007) argues that while gender scholars are often accused of mainly focusing on the concerns of women and neglecting the needs of men in their research, the common view among these scholars is that increasing gender equality often means to prioritise the needs of women and girls. In a disaster context this is because of their vulnerabilities due to issues such as cultural constraints affecting their mobility, sexual and domestic abuse, and poverty (Enarson et.al. 2007, p. 141). According to WHO (2018) gender

can be defined as "the socially constructed characteristics of women and men – such as norms, roles and relationships of and between groups of women and men". Additionally, gender constructions are not static and can vary across societies (WHO, 2018). Gender roles and social constructions of gender are considered as one of the main reasons for the differences in how women and men experience disasters (Enarson & Chakrabarti, 2009; Fothergill, 1998; Ikeda, 2009; Neumayer & Plümper). Within the concept of social construction of gender lies biological and sexual factors (Enarson & Cakrabarti, 2009; Ikeda, 2009), in addition to social norms, behaviour, and temporary breakdown of social order in the aftermath of a disaster (Neumayer & Plümper, 2008, p 553). At different stages, these factors have implications for women's ability to respond to disasters and increase vulnerability and discrimination against women in times of crisis (Neumayer & Plümper, 2008, p. 553).

Neumayer & Plümper (2009) states that traditional labour divisions can increase women's vulnerability to disasters. Enarson et.al (2007) and Twigg (2004) also finds that the most fundamental reasons for women's vulnerability are due to the position of women in society and their productive, reproductive roles and expectation for them to participate in community tasks, which they are expected to continue in a disaster situation. These tasks will under more difficult conditions often be exacerbated (Twigg, 2004, p. 81) Fothergill (1998) refers to Cook (1993) and the observation of women's role in a disaster aftermath: *"men build the roads, towns and houses, but the task of putting lives together becomes the women's role".* Due to social norms, women often have little or no access to resources, information and education, including training in survival skills such as climbing trees and swimming (Neumayer & Plümper, 2008; Twigg, 2004). Additionally, positions of decision-making and income-earning opportunities largely falls to men (Twigg, 2004, p. 81).

Bolin, Jackson & Crist (1998) found that gender has gained little attention in terms of how people respond to disasters. The focus has been on the different ways in which men and women perceive risk and how they respond to warnings, rather than the differences of disaster experience between genders with little focus on why there are differences in the first place (Bolin et.al. 1998, p. 28). Enarson et.al (2007) finds perceptions of risk, preparedness and evacuation have tendencies to differ in terms of gender and gender roles, in general women tend to be more concerned with the prospect of a risk or warning of risk (Enarson et.al. 2007; Fothergill, 1998), while men would in general be more concerned with hazard awareness and the protective measures (Fothergill, 1998, p. 15).

Distinct gendered vulnerabilities are according to Enarson et.al (2007) seen as their livelihoods, increased physical and emotional abuse, early marriage, and their roles as caregivers and homemakers being expanded in disaster times. Additionally, Fothergill (1998) claims that women are more likely to suffer from mental health issues, such as Posttraumatic Stress Disorder (PTSD) and more likely to die in the direct impact and aftermath. Neumayer & Plümper (2009) suggest that the higher rates of death among women is due to lack of survival skills and training and their dependency on their husband or other male family members.

Neumayer & Plümper (2008) states that disaster impacts depends on the type of disaster itself, and that there are several instances in which men are more vulnerable to the impact of a disaster, because they are working or spending time outside, but also because they might be less cautious in the face of a hazard. Or men can be more susceptible to parasitic and infectious diseases and are less able to recover from hunger (Neumayer & Plümper, 2008, p. 553;555) Additionally Twigg (2004) suggest that men who work at sea are often more vulnerable to cyclones. And Fothergill (1998) lists increased alcohol abuse, higher levels of physical and mental issues, and depression among men as common effects of disasters.

Twigg (2004) claims that women in many cases know that they are vulnerable and why, and because of this, it is important that their voices, opinions and knowledge are taken into account in disaster risk contexts. They are not simply 'helpless victims', but inherits vast experiences, skills and coping strategies which can be valuable for disaster risk reduction measures (Ariyabandu, 2009; Wiest et.al. 1994). Fordham (1999) finds that such capacities have been neglected in a male-dominated disaster risk reduction sector, and have been contributing to lead women - and men – further into vulnerability.

3.6. Community-Based Development and Disaster Risk Reduction

The shift from top-down to more inclusive approaches is part of the realisation of the need for development to be everyone's business, and that the state cannot in itself be solely responsible for social growth and development (Mohan & Stokke, 2000; Twigg, 2004). Chambers (1993) see community based approaches to development, or Participatory Rural Appraisal (PRA), as "a growing family of approaches and methods to enable local people to share, enhance and analyse their knowledge of life and conditions", in which development projects and strategies are owned by people in the communities.

According to UNISDR (2014) community-based disaster risk reduction holds similar values as PRA in that it aims to provide local ownership of the strategies and processes implemented in disaster risk reduction. Through development and outside intervention and activities disaster risk reduction aims to reduce vulnerability and make communities more resilient (Mercer, 2010, p. 249). The importance of community-based approaches to disaster risk reduction can be seen in light of the need for communities to be able to respond to disasters and threats on their own (Pandey & Okazaki, 2005, p.2). When a disaster strikes, people in communities are often the ones who are most affected by disasters, and best able to recognise their own needs (Mercer, 2010; Pandey & Okazaki 2005). As disaster are mainly 'local events' with people in local communities suffering the most from its impacts, these people often have the most to gain from reducing disaster risk (Gaillard & Mercer, 2012, p. 6). Additionally, people often inherit knowledge about their community, their own vulnerability to disasters and how disasters have affected them in the past (Heijmans, 2001, p. 11).

Outside relief assistance is often not available in the immediate hours after a disaster has happened, meaning that the affected people are 'the first responders to the event', and should be able to save lives and livelihoods (Gaillard & Mercer, 2012, p. 6). The need for outside intervention is, however, still evident for raising public awareness (Heijmans, 2001, p. 11) and ensuring sustainability of DRR efforts (Gaillard & Mercer, 2012; Mercer, 2010; Okazaki & Pandey, 2005). As such, the common perception is that there should be a combination of top-down and bottom-up approaches (Gaillard & Mercer, 2012; Heijmans, 2001; Mercer, 2010; Pandey & Okazaki, 2005), and that there is a need for at least some degree of participation to make development sustainable (Hickey & Mohan, 2005, p. 237).

Hickey & Mohan (2005) finds that despite the recognition of participatory approaches as an important factor of development, there are some concerns of its actual effects. Mainly the critiques of participatory development fail to recognise local power relations and politics, thus they rarely lead to 'meaningful social change'.

One of the main critiques of participatory development points to the common understanding of 'community'. The idea is that a community is a place of 'harmony' and 'coherence' (Cannon, 2008a, p. 11), and the relationships between its inhabitants is 'clear and uncontested' (Williams, 2004, p. 561). In reality, communities are spaces where everyday power relations causing exploitation, inequalities and oppression are very much in play (Cannon, 2008a, p.13), and ignored, as they are seen as social norms and part of the local culture (Williams, 2004, p. 562). Especially in cases of gender issues (Cannon, 2008a;

Williams, 2004). Decentralisation seems to fail to grasp and overcome these differences in the local sphere (Hickey & Mohan, 2005, p. 243).

Decentralisation can put the local level authorities in a position where the degree of their new responsibilities exceeds their resources to actually deal with pressing issues, in that manner the efficiency of DRR efforts can be reduced (Twigg, 2004, p 69). Parfitt (2007) refers to the criticism presented by Cooke and Kothari (2001) which states that the assumed goal of decentralisation and participation is to empower those at the local level. The outcome is rather that local people are incorporated into top-down development strategies that appears to be participatory, while the agencies facilitating the projects still remains 'unaccountable to those they are supposed to serve" (Parfitt, 2007, p. 537-538). Similarly, Cornwall (2003) claims that participation projects appears to be providing a voice and a choice for anyone involved, but despite promises of "full participation" and empowerment, those with least power are often left out based on aspects such as gendered interests.

Williams (2004) states that it is not possible to predict the outcomes of participatory approaches to development, whether they are positive and negative. For successful development on a long-term basis, neither framework should exclude the other (Gaillard & Mercer, 2012, p.6) if the aim of DRR is not only to increase people's resilience and coping strategies in facing a disaster, but to build the community back better and elevate people's condition than what was before the event (Heijmans, 2001, p 11).

3.7. Theoretical Framework

The purpose of this study is to understand women's perception of their own vulnerability and their understanding and perception of how they can participate in reducing the disaster risks in their community. This section will explore the theory that this study builds on in terms of vulnerability and disaster exposure.

3.7.1. Social Vulnerability

Enarson, Fothergill & Peek (2007) states that there is no particular theoretical framework that conceptualise the issues concerning gender and disasters, a common approach is, however that of social vulnerability. This study builds upon Wisner, Blaikie, Cannon & Davis (2003) and their understanding of disasters and their impacts as a result of the existing social, political and economic structures in different societies. Vulnerability research is usually placed within one of three different principles, that is, exposure – what conditions that makes

people and places vulnerable; considering vulnerability as a result of social conditions; and focusing on specific places by combining potential exposure and social conditions to understand vulnerability (Cutter et.al., 2003, p 243). To separate the natural and the social aspects of disasters can give a limited understanding of the additional burden a disaster place on the affected *people* and will most likely make it more difficult to construct effective mitigation and prevention methods (Wisner et.al., 2003, p. 5). Terry Cannon (1994) argues that while hazards are natural, disasters themselves are not. He emphasizes the importance of considering the "… condition of the people which makes it possible for hazards to become disasters", and stresses that disasters should not be seen as an unavoidable consequence of existing hazards. The condition of the people refers to what type of vulnerability they are exposed to and how their society relates to hazards by initiating preparedness and mitigation efforts (Cannon, 1994, p 13).

Adger (1999) defines social vulnerability as "The exposure of groups or individuals to stress as a result of social and environmental change, where stress refers to unexpected changes and disruption to livelihoods". Social vulnerability is partly the result of social inequalities (Cutter et.al, 2003; Singh et.al., 2014), and is determined by physical, social, economic and environmental factors that shape the ways in which a community and its people are affected by a disaster (Singh et.al. 2014, p 72). There are several factors that contribute to social vulnerability such as, lack of access to resources (i.e. information and knowledge); limited access to political power, decision-making positions and representation; cultural customs and beliefs; quality of building structures; infrastructure and lifelines (Cutter; Mitchell & Scott, 2000; Wisner et.al, 2003). In this study vulnerability is seen as caused by "lack of information and resources" and "cultural customs and beliefs", with a focus on the impact of women and the earthquakes that hit Lombok Island throughout August 2018.

Vulnerability is not static but varies over time and space and social groups (Cutter et.al. 2003). However, there are some characteristics that are generally represented in the vulnerability literature as factors that affect people's vulnerability, such as age, race, ethnicity, gender, income and buildings (Cutter et.al. 2000; Cutter et.al. 2003; Wisner et.al., 2003). In this view, people's vulnerability is not caused by 'natural forces', but rather determined by social systems and power that structure people's lives in terms of location, income, livelihood etc., and needs to be understood thereafter (Wisner et.al. 2003, p 6).

There are different vulnerability features that make up the foundation of social vulnerability, Birkmann (2006, p.15) argues that these features are driven by different stresses and exposure

aspects, and they are often rooted in human actions and social networks. Further, he argues that it is important to consider the social conditions as a measure of a hazard events impact, this perspective also allows for a society to cope with or reduce their capacity to resist damaging impacts of an event (Birkmann, 2006, p 15). This perspective emphasises coping capacity and resilience of impacted societies as part of vulnerability. But, vulnerability, and potential future vulnerabilities can also be seen by studying the patterns of damage (Birkmann, 2006, p 15).

Cardona, Birkmann, Fordham and van Aalst (2012, p. 70) argues that seeing vulnerability in the context of disaster risk management, is one of the most notable demonstrations of risk as a social construction. Further, they argue that disaster risk and people's exposure and vulnerability is increased "…by transforming physical events into hazards of different intensities or magnitudes through social processes…". These social processes include, how human action can affect exposure and vulnerability levels to various events; human interaction with the environment, and how these actions can either lead to new hazards to be created, or, exacerbate the potential damage that existing risks already pose; and how people perceive and understand risk and vulnerability factors, and thus, how they react and respond to disasters, and how decision-making processes are conducted (Cardona et.al. 2012, p. 70). Therefore, it is important to also consider people's own perception of and knowledge about vulnerability, in order to understand their behaviour in relation to hazards and disasters (Bankoff and Hilhorst, 2004, p.3).

Cardona et.al. (2012), argues that it is important to recognize that people and communities are not only helpless victims in the face of vulnerabilities and disasters, but they are themselves "active managers of vulnerability", this suggest that as well as the social conditions of vulnerability, people and their everyday activities, interactions and accesses are drivers for vulnerability (Cardona et.al. 2012, p 71). Bankoff and Hilhorst (2004) suggests that people's perception can be put into three categories of social knowledge; governance, science or local customs. All these factors are significant to understand what causes people to be vulnerable and their capacity to potentially reduce it (Bankoff & Hilhorst, 2004, p 4). Annelies Heijmans (2001), claims that often "…local people have no concept of 'vulnerability'", as people over the course of history have developed strategies, skills and knowledge of how to cope when a disaster event strike. Further, they have had to cope without the assistance from government and organisations (Heijmans, 2001, p. 4).

The study will apply the **Pressure and Release** (PAR) Model presented by Wisner et.al (2003) to assess the vulnerability of people to natural hazards. The PAR model assesses vulnerability by considering the social components as root causes, dynamic pressures and unsafe conditions. The model recognises the need, not only to address the immediate hazard causes or vulnerabilities, but to consider all causes of a disaster event (Wisner et.al. 2003 p. 87).
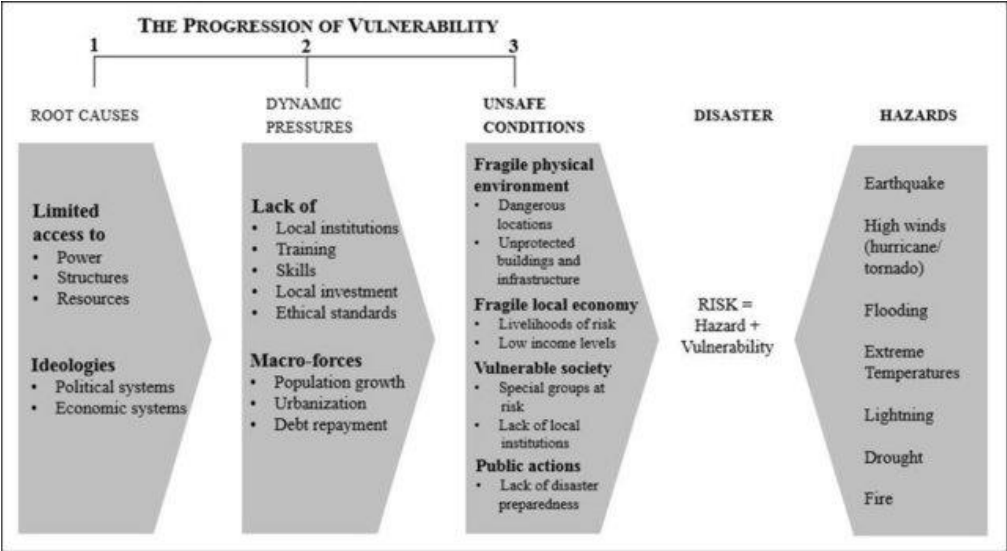
Figure 3: The Pressure and Release Model (Source: Wisner et.al. 2003, p. 51).

The PAR model is intended to be used as a simple tool to illustrate the effects of a hazard on a vulnerable population. If vulnerability is seen as being a product of underlying causes and social processes, it may also be not related to disaster events themselves (Wisner et.al. 2003, p.50).

Root causes of vulnerability are connected to political, economic and demographic processes in a society, which have an impact on how resources are distributed between groups of people. Economic, political and social structures as root causes are also affects gender relations, and how rights are enforced (Wisner et.al.2003, p.52). Root causes can also be seen in relation to the 'function (or dysfunction)' of the state, and with capabilities and execution of authorities at different levels (Wisner et.al, 2003, p 52).

Dynamic pressures are according to Wisner et.al. (2003) more "contemporary or immediate, conjunctural manifestations of general underlying economic, social and political patterns". Through dynamic pressure the factors of root causes are transformed into unsafe conditions, which in turn are connected to the specific hazards that different groups of people are facing.

Examples of dynamic pressures include rapid urbanisation, violent conflicts and epidemic disease (Wisner et.al. 2003, p. 54).

Unsafe conditions can be defined as the 'specific forms in which the vulnerability of a population is expressed in time and space" in relation to a hazard (Wisner et.al. 2003, p. 55). For example, people living in hazard-prone places, are economically unable to ensure safe buildings, if the state does not provide effective protection, or if livelihoods require them to perform possibly dangerous activities, such as small boat ocean fishing. Additionally, the general well-being of individuals, households and societies are determinants of unsafe conditions (Wisner et.al. 2003, p. 55). In other words, Wisner et.al (2003) suggest that unsafe conditions should be seen as vulnerability of people in terms of where they live or work in everyday life.

The PAR model is however a static one and exacerbates the separation of disaster events from social processes as a means to emphasise the significance of social factors as a contributor to the impacts of the disaster event (Wisner et.al, 2003, p 91). The PAR model is intended to be used as a simple tool to illustrate the effects of a hazard on a vulnerable population. If vulnerability is seen as being a product of underlying causes and social processes, it may also be not related to disaster events themselves (Wisner et.al. 2003, p.50). In practice the PAR model allows for a community or group to define their own vulnerabilities, capacities and risks instead of being told by outsiders why they are vulnerable (Wisner et.al. 2003, p 84).

In many cases, aid and relief projects, however well-intended, can increase or create new vulnerabilities (Bankoff & Hilhorst, 2004, p. 3), and a people's and community's capacities are often forgotten when aid organisations do recovery and relief efforts, treating the impacted people as merely victims and recipients of relief and aid (Wisner et.al, 2003, p. 14; Cardona et.al. 2012, p 74). However, most people are in some way or another able to protect themselves and use their capacities to recover, and risk management strategies are more likely to be effective if they, both, reduce risks and allow for people to enhance their capacity to respond to disaster impacts (Cardona et.al. 2012; Wisner et.al, 2003).

4. Metodology

In this chapter the methodological strategies and methods will be presented, described and justified. The sections will describe research strategy, research design, data collection methods, data analysis approach and the ethical considerations that have been faced

throughout the research process. In addition, there will be a section dedicated to the various challenges and limitations I have encountered.

4.1 Epistemology and Ontology

The key purpose of the study is to explore how women perceive vulnerability in relation to disasters and how they see themselves participating in disaster risk reduction efforts. In that sense, there is a need to gain a considerate understanding of women's role in the society and their relationship with NGOs and participative practices. With this in mind to choose an epistemological standpoint, an interpretive perspective is applied. An interpretive perspective stems from the belief that qualitative research is about "revealing multiple realities as opposed to searching for one *objective* reality" (Guest, Namey & Mitchell 2003, p. 6). Interpretive approaches try to understand why and how human behaviour comes about, rather than explaining it (Alan Bryman, 2016, p 26; Guest et.al, 2013, p. 1).

In terms of ontological considerations, a constructivist perspective is applied. Constructivism understands the social conditions and the meaning behind them as created by human action. Social phenomena are both created through social interaction and constantly in "a state of revision." In that sense, the researcher will present a distinct form of social reality, instead of a social reality that can be seen as a definitive one (Bryman, 2016, p 29).

With these considerations in mind, it is considered that a qualitative research is the most appropriate strategy for this thesis. Qualitative research aims to understand a topic from the perspective of the people it concerns, and is effective in collecting information about specific cultural aspects, such as opinions, behaviours and social relations of different societies and groups of people. Further, qualitative methods can represent the '"human" side' of a research issue, meaning that it can build an understanding of aspects social relations, such as behaviour, beliefs and relationships that often contradict each other (Mack, Woodsong, MacQueen, Guest & Namey, 2005, p.1). In addition, using qualitative methods can reveal and identify 'intangible factors' such as gender roles, social norms, religion and ethnicity (Mack et.al, 2005, p 1).

4.2 Research Design

Bryman (2016) distinguishes between five main types of research design, experimental design; cross-sectional design; longitudinal design; case study design; and comparative design (Bryman, 2016, p. 40). This study mainly focuses on the outcomes and situation after a

distinct disaster, as such a case study design will be the most appropriate. Case studies normally involves the examination of a specific case in detail (Bryman, 2016, p. 40).

The selected case is based on three villages in two districts of North Lombok region, following the 2018 earthquakes. Bayan and Sukadana Villages in Bayan District and Tanjung village in Tanjung District. Bayan district is one of the most rural areas of the region, while Tanjung has experienced increased growth mainly due to tourism. Both districts were severely damaged by the earthquakes. The people of Lombok are very connected to their local traditions and cultural values, which greatly influences gender roles and social relations in their societies.

Both districts were severely damaged by the earthquakes and were still struggling to recover from the impacts both in physical space and mentally. It was a powerful experience being able to take part in their daily lives as they continued to make their way back to daily life.

4.3 Sampling

In qualitative research the most common method of sampling is purposive sampling, it is a non-probability form of sampling (Bryman, 2016, p 407). It involves the identification of relevant units, such as people, organisations, documents etc. (Bryman, 2016, p 408). The research questions will work as an indicator as to what units meets certain criteria and are thus relevant to answering them (Bryman, 2016, p 408; Mack et.al, 2005, p. 5). Purposive sampling does not allow the researcher to generalize to a population, and enables the researcher to gain access to a wide variety of participants who meets criteria and can provide different perspectives and experiences on topics related to the research questions (Bryman, 2016, p 408; Mack et.al, 2005, p. 5).

I had decided on North Lombok as a location for the research was beforehand, but the exact location was decided in collaboration with the two students from Gadjah Mada who would accompany me and assist me during the field work. We decided on Bayan district and village due to this area being one of those most affected in the region, additionally, one of the students knew someone who had been conducting research there recently. As such, her friend could be a sort of gate keeper for us to establish contacts and for accommodation and respondents. However, after an interview with the local leader of the Sukadana women's school, I soon saw the need for expanding the research area. In large this was due to wanting to get several perspectives and to explore potential differences of experiences within North

33

Lombok. Additionally, it seemed as if people in other villages than Bayan, were more open to speak to me as a researcher, not only seeing me as a visitor and a tourist. As a result, Sukadana village in Bayan district and Tanjung village in Tanjung districts were also areas in which I conducted my research.

As there have been some difficulties in gaining access to NGOs that are working with gender sensitive DRR, I have been sampling from different institutions that have a focus on women in society. Many NGOs that conducted DRR efforts in the area after the earthquakes was collaborating with local women's schools in the villages. So, the staff in those schools have been important informants as well.

Through the sampling I was concerned with talking to people from all social levels. As different status can have an impact on different social components. There are also certain cultural and demographic differences between villages in the area that have been important to consider. However, the vast majority of respondents, regardless of class and education levels, seemed to have similar views and perspectives regarding vulnerability and disasters in general, while the more in depth we explored the concepts, more nuanced views approached about them.

All people living in North Lombok, and thus, in Bayan and Tanjung districts were in one way or another affected by the 2018 earthquakes, which was also an important criterion for the sampling of respondents. The sample was also found through help of my translators in addition to my host family and people in the communities. So, in addition to the purposive sampling there were elements of snow-ball sampling approach, in that one respondent pointed me in the direction of other people who could be interested in participating in an interview.

Regarding the number of interviews I wanted to conduct, I had to some degree an idea of how many I wanted to conduct, however I was also aware of the challenges I could face in relation time constraints and to people's disposition to talk to me.

The sample consist of 15 in-depth interviews, which were quite informative. O'Reilly (2012) argues that in ethnography there is less of a focus on the number of interviews, and more emphasis on the quality of them (O'Reilly, 2012, p. 119). I conducted one interview with a woman who had studied outside of North Lombok, she had also been active in several environmental organisations and DRR initiatives. One woman was also engaged in the tourism sector and a gender equality activist. Additionally, women active in the local sections

of the women's school, Kapal Perempuan, could provide information about gender relations and its development in their villages.

In total, 13 of the interviews conducted were with women in the communities from different social classes, and with different levels of education and employment. Seven of these women were activists, from different organisations and the women's schools, in addition to government employees in Tanjung. And two interviews were conducted with men in the communities.

Due to the small sample size, different locations and the different social levels and differences within the studied areas this sample cannot be seen as representative. Rather it can be a guide to understand different aspects regarding vulnerabilities and recovery and in rural post-earthquake villages of Lombok, Indonesia.

4.4 Data Collection Methods

Karen O'Reilly (2012) suggests that there are several ways of collecting data in ethnographic research, including participatory observation, in-depth interviews, and conversations (O'Reilly, 2012, p. 10). Additionally, one can use videos/photographs and focus group discussions (Crang and Cook, 2007, p.1). The researcher will involve themselves in the daily activities in a community to understand the social world through the perspective of the population it explores (O'Reilly, 2012, p 11).

The main method for data collection in this study has been in-depth interviews, they have all been conducted with a translator and a tape-recorder. Further, I have been able to attend a few community meetings, which has created an opportunity to observe women and their behaviour in such settings. Additionally, I have attended an NGO's women's group in which they learn how to use different ingredients to make a nutritious meal. Additionally, due to the fact that we experienced a few earthquakes – the largest was at a magnitude of 5.8 - while in the field, between 15th to 18th of March, I found myself observing people's reactions and behaviours in the aftermath, and, of course, sharing and participating in their methods of coping with the stresses and worries it caused. These events and its implication for my research will be further explained in section 4.7 which covers the challenges and limitations faced during the research period.

Bryman (2016) suggest that the qualitative interview is a common term for the unstructured and semi-structured interviews, such interviews tend to focus on the perspective of the people being interviewed, and their opinion on what is important related to the topic, rather than the researcher's concerns (Bryman, 2016, p 466). The qualitative interviews, or, in-depth interviews are one of the most widely used methods for collecting data in qualitative research, partly because "they are very effective in giving a human face to research problems", and the participants are enabled to express their opinions on a specific topic (Mack et.al, 2005, p. 29). O'Reilly (2012), argues that interviews in qualitative research can also take form in opportunistic chats (O'Reilly, 2012, p. 116).

The interviews conducted during the research have been semi-structured, I had a list of topics and/or questions that I would like to go through, but I also kept an open mind to listen to the informant's points of views on other topics which they found relevant to bring up during the conversations. The questions I had prepared in my interview guide were open ended. As such questions allowed for the respondents to answer freely and talk openly about their world views, and my own ideas and frameworks were less prominent during the conversation (O'Reilly, 2012, p 122). Flexibility in qualitative interviews also provided an opportunity for me to follow up relevant, emerging topics that I might not had considered previously. Additionally, it is a great way to recognise themes and topics that can be interesting for further research.

When conducting qualitative interviews, it is important to not be judgemental or not to 'indicate agreement or disagreement' with the respondents' points of view (Bryman, 2016, p. 472). This was an important aspect for me to keep in mind while conducting my research, especially regarding aspects of gender relations and vulnerability. In a sense, my perceptions of these concepts may differ from those being interviewed. While going through my questions and potentially revising them form the next interview, I constantly had to be aware of not taking a biased stance when rewriting and asking my questions.

It was also important during my interviews not to ask leading questions, because my aim was to learn about their perceptions, not for them to give me answers they though I wanted to hear. One challenge regarding this was the constant need of a translator, I often felt that my questions were maybe misunderstood by either the translator or the interviewee, and sometimes asked in a different way than intended. When reviewing the transcripts, they

sometimes also showed some evidence of this might being the case. However, with open dialogue with my translator(s) we were able to reduce these challenges.

4.4.2 Focus Group Discussions

Focus group discussions (FGDs) are essentially group interviews, and the number of participants vary, but normally more than four (Bryman, 2016, p 501). FGDs can be a useful data collection method as it allows the researchers to understand the social norms in a community and gain insight into a range of existing perspectives and opinions in that community (Mack et.al. 2005, p 51). In contrast to in-depth interviews, that cover a wide span of relevant topics, FGDs normally emphasize a specific topic in-depth (Bryman, 2016, p. 501). Additionally, FGDs allow for the participants to respond to others views of the topic in question, and to broaden their knowledge and form new opinions in discussion with other people in their community (Bryman, 2016, p 501;502).

The use of FGDs provided an opportunity for me to efficiently gather data as I had a limited time frame. And it was interesting to observe the dynamics between people and women a\of different social classes and levels of education.

I would have liked to be able to conduct four focus group discussions with a variety of participants in terms of gender and locality, but due to the restrictions that the earthquakes that occurred I was unfortunately only able to conduct two women only FGDs. The ideal would have been to have one or two FGDs with both men and women to be able to observe gender relations in such a setting.

The FGDs covered the topics of gender roles and equality and vulnerability, both in Bayan village. In total 10 women participated in each of the focus groups. Additionally, I was able to observe as a national representative of Kapal Perempuan conducted an FGD about the progress of reconstruction of homes in Bayan village, where 40-50 women were taking part.

Regarding challenges with FGDs, I found that due to the number of people participating it can be hard to keep track of who says what, and to keep up with the translation, further the transcription of these interviews is highly time-consuming. Another concern I faced was that, often, some participants that speaks louder and clearer than others, and while others again seemingly agreed with the most common opinion. However, this might be due to there being a common agreement or understanding about certain topics, and not necessarily an issue.

4.4.3 Participant Observation

When combining in-depth interviews and participant observation it often becomes apparent what people say, might contradict to what they do (O'Reilly, 2012, p 119; Mack et.al, 2005, p. 13). Mack et.al. (2005), suggests that the data collected through participant observation can be used to compare the participant's subjective responses to what they believe and what they actually do (Mack et.al. 2005, p 14). Additionally, participant observation can provide an understanding of the social realities in the community where the participants live, such as the cultural, social and economic contexts, as well as, behaviours, relationships, living situation (Mack et.al. 2005, p 14).

During the fieldwork I was able to participate in one Sukadana Village meeting in which the topics were rehabilitation and reconstruction after the earthquakes. Additionally, I was able to attend meetings were local organisations and one NGO, which were concerned with providing, mostly women, with knowledge and information about nutrition for them, their children and family members. I was also able to attend a funeral in a neighbouring community, in which the rituals and specific roles of family members and neighbours were observed.

I had not anticipated that observation would be such an important aspect to my research. However, following the moderate earthquakes that we experienced mid-March in North Lombok, it was possible for me to observe reactions, feelings and participate in some of the coping strategies. These earthquakes were not as strong or inflicted nearly as much damage as the previous series of shocks that occurred seven months before, but they served as a reminder for both me, and for the inhabitants of North Lombok that this is not necessarily a one-off event. And the observations I made in the days after became valuable to understand, at least a fraction of this reality.

4.4.4 Documents as Sources of Data

Bryman (2016) refers to Scott (1990) and the criteria that are important to keep in mind when assessing the quality of documents, Authenticity; credibility; representativeness; meaning (Bryman, 2016, p 547).

The local governments offices in North Lombok (Nusa Tenggara Barat; NTB), have provided documents containing information about demography, politics, social customs and information about the situation after the earthquakes. Additionally, this study makes use of documents from different NGOs, including a case study of women in a disaster situation. Further, some rapid assessment studies conducted in Lombok after the earthquakes were used

to complement the data collected in during this study. Bryman (2016) argues that while these documents can useful in terms of authenticity and as having meaning, they might also be biased, and one should be careful in treating them as a realistic depiction of reality. Additionally, documents from organisations should be examined in the context of additional sources of data, as people who write documents in many instances will try to present the data in their own point of view. (Bryman, 2016, p 553;554).

4.5 Data analysis: Grounded Theory

Kathy Charmaz (1996) calls grounded theory methods a "logically set of data collection and analytic procedures aimed to develop theory", and that in involves inductive approaches for data analysis. Further, Charmaz (1996) explains that with a starting point in a single case or incident the researcher aims to understand their data and identify patterns and relationships within it through conceptual categories. Bryman (2016) states that the grounded theory approach has become one of the most commonly applied approaches to data analysis in qualitative research. And O'Reilly (2012) describes grounded theory as an inductive approach to the collection of data and analysis is seen as both a process and a practice. The goal of grounded theory is to both create new and explaining existing theories. With grounded theory being mainly inductive, the approaches within it are flexible and open and lets the researcher follow up on key issues that emerge throughout the data collection, additionally, the research is built as it happens, rather than planning its course beforehand (Kathy Charmaz, 1996, p. 47). Additionally, using grounded theory methods is an efficient approach to research as it enables the researcher to be structured and organised in their work (Charmaz, 1996, p 47).

Grounded theory aims to explain, understand and describe the social phenomena that is being studied (Charmaz, 1996; Juliet Corbin & Anslem Strauss, 1990). Additionally, it seeks to understand individual or collective human behaviour, not solely present the perspectives of the ones being studied, Strauss & Corbin (1994) stresses that the researcher "assume the further responsibility of interpreting what is observed, heard or read". Thus, with the aim of this research being to understand women's perceptions of vulnerability and their role in disaster risk reduction, grounded theory is an appropriate choice for analysing the data. According to Bryman (2016), states that one of the main outcomes of grounded theory is to identify categories that represent real world phenomena.

The processing and analysis of the data starts soon after data collection has started, and the researcher uses their own interpretations and experiences when comparing and discovering

correspondences between concepts and categories (Bryman, 2016; Corbin & Strauss, 1990; O'Reilly, 2012). When immediately starting the analysis, it allows for the researcher to recognise emerging and relevant topics and include them in the following interviews and/or observations (Corbin & Strauss, 1990, p. 6). In addition, Bryman (2016), states that with this approach the important data are easily sorted out and can be seen in context more easily. The aim of grounded theory methods is to avoid static analyses, and understand what people are doing and the different reasons for why they are doing it (Charmaz, 1996).

In grounded theory, coding is considered to be one of the most central processes, and is done by reviewing transcripts, field notes and naming components that are deemed significant theoretically or significant within the social realties being studied (Bryman, 2016, p 573). Charmaz (1996) claims that coding "is the process of defining what the data is all about", and in grounded theory coding means to create the codes as the data is processed.

In addition to a tape recorder being used during interviews, and at times, observation, I found it important to take field notes of my impression of the people and places during interviews. Samantha Punch (2010) refers to field notes as a way of addressing the researcher's observations, and their experiences of places, people, actions and happenings. As well as they are tools for reflection about the observations and the data collected. I found that it made it easier to sort out relevant data and to take into consideration how people responded to the topics of discussion, in terms of body-language and surroundings that are not captured by a recording device.

In addition to recording the interviews and transcribing them, I took notes during interviews, as such I could note down and generate possible categories and concepts that could be relevant during the conversation as well as revise when relistening to the information. However, such a process is not straightforward, it requires a lot of back and forth in terms of revisiting the raw material, constantly revising codes and categories and change the relevant categories in addition to consider a possible relationship between them. As Bryman (2016) points out, coding within grounded theory analysis "tends to be a constant state of potential revision and fluidity".

I also found it important to take field notes of my impression of the people and places during interviews and in general. Samantha Punch (2010) refers to field notes as a way of addressing the researcher's observations, and their experiences of places, people, actions and happenings. As well as they are tools for reflection about the observations and the data collected. I found

that it made it easier to sort out relevant data and to take into consideration how people responded to the topics of discussion, in terms of body-language and surroundings that are not captured by a recording device.

Constant comparison is an important aspect of grounded theory, Bryman (2016) recognises it as an important relationship between data and conceptualisation to make sure that the indicators of concepts and categories are prominent. Corbin & Strauss (1990) explains it as a way of labelling concepts in terms of incidents. If an incident is recognised, it should be compared to other incidents to see if there are similarities or differences. Further, constant comparison is important as it is a tool for avoiding bias because the established concepts are confronted with new information (Corbin & Strauss, 1990, p.9). Additionally, Charmaz (1996) explains the key issues should emerge for themselves rather than be forced into preconceived categories, the collected data is then shaped to be able to follow the most relevant material. Taking into account the large amount of information collected through grounded theory, the emerging categories were organised in terms of recurring topics within the research questions. Then I found it useful to create a mind map where my categories were sorted to the research question to which they were relevant.

Charmaz (1996), suggests delaying the literature to after the conceptual analysis has been developed, and then figure out how and where your work fits in with the previous literature. Dunne (2010) refers to Charmaz (2006) who suggests that by delaying the literature review, the researcher can to a larger degree avoid letting preconceived notions impose on their research. However, I found it more appropriate to collect literature before conducting the data collection and analysis, but also in between the data collection and analysis, in terms of relevant literature that is based in proximity to my research location on similar topics. As such I could combine the literature I found before starting the collection of data with previous literature after the collection was completed and see the relation between my own findings to previous research done in Indonesia.

It proved difficult, however, to not let my preconceived ideas and previous knowledge become evident during interviews and when writing up the analysis.Because I was not fully aware of the cultural contexts and the communities and their norms, it became necessary to keep an open mind and be flexible in my research.

4. 6 Ethical Considerations

Bryman (2016) refers to Diener and Crandall (1987) and their four main concerns in terms of ethical or unethical principles, these are: *harm* to the participants; *lack of informed consent*; *Invasion of privacy*; and *deception* (Bryman, 2016, p. 125).

One of my main concerns before and during the field work was that the topics being discussed can be considered as sensitive. The main topics are about women and their roles and situation in society and about difficult times in relation to disasters. In this sense, to ensure that there was no harm to the participants, it has been important to keep information and personal data confidential. In addition, I have made sure to provide the informants with enough information about what participating will include for them to better be able to make an informed decision about whether they are willing to participate, and how they could withdraw their contribution if they wanted to.

Further, it has been important to clearly state the purpose of my research and my purpose for wanting to talk to them and ensure that the data and information they provide me with is presented as accurately and according to their depictions of their opinions and experiences. However, with most of the participants speaking little to no English, it was more purposeful to have the translator write shorter notes for the respondents to sign, while also giving a more detailed description about the project orally.

4.7 Challenges and Limitations

Throughout the data collection period there were quite a few challenges regarding language and translation barriers. As I have been completely dependent on translation during all the interviews and meetings, there is a great possibility of important information have been lost in the translation process. I was been collaborating with two students from Gadjah Mada University in Yogyakarta that were also functioning as translators. We were been able to solve this partly by doing a step-by-step approach to translating during the interviews, if both students were with me, one would translate while the conversation continued. Only interrupted if translation was not complete in time for me to ask another question. Whereas I asked my questions, the informants answered, and their responses were partly translated. Not detailed, but enough for me to be able to understand the main contexts and come up with un-scripted follow up questions. Then the translators would also review the recordings from the interviews and translate them in detail afterwards.

I met the Indonesian students the first day I arrived in Indonesia and became friends quickly.

There have been some hindrances and obstacles in terms of language and communication, but in the end, I think we have found a common understanding of what we need from each other and we collaborate well. Another main concern in the beginning was that the people of North Lombok would feel uncomfortable speaking to me about their experiences connected to the relatively recent earthquakes. Interview settings can be intimidating and it took a while for people to open up about the difficulties surrounding the topic, but as soon as we started treating the interviews more as a casual conversation after the formalities was in place it became easier to create a flow in the conversation and to listen to their stories.

Time constraints and transportation proved to be great challenges. It did take some time for people in the villages to open up to talking about certain issues and topics, which in many ways delayed the data collection quite a lot. It also 'forced' me to consider Tanjung as a possible location to conduct most of my research. However, as there is no public transportation in the area where we live, there were times were getting around was quite difficult. We eventually gained access to a motorbike from the local government office in Bayan village, but travelling to different villages and areas have still been time-consuming due to damaged roads and intimidating traffic.

I did have difficulties in finding an NGO that had participant projects and DRR projects. There are not many NGOs left in the area, and most of NGOs in the area in the Bayan district have not used participant projects, neither for men nor women. One NGO in Bayan is focussing on women learning how to use Komak (a nut that have several purposes in cooking), and in Sukadana, women were only included by cooking (ingredients provided by NGOs, which women then cooked for community). I decided then that I have to extend my research to include another area in North Lombok and decided on Tanjung district which was also severely affected by the earthquakes, as a result I came in touch with a Mataram based organisation (a gender working group) that did some gender specific work in Tanjung. The NGO is not in Tanjung anymore and they had no office in Tanjung while they were there, which means I needed to correspond with them online, and they provided a case study report they conducted after the earthquakes, as it was challenging to find people that had been participating and could provide their insights on their perspective on the NGOs efforts.

Most gender sensitive projects involved cooking and food, nutrition, not necessarily about disaster preparedness and reduction, but this allowed for an insight in how gender roles are perceived.

A third challenge occurred towards the end of the research period, between March 15th and March 18th there was a series of earthquakes felt in our area, the earthquakes were ranging from magnitude 4.0 – 5.8, with the epicentre both in, Anyae, one of the neighbouring villages, and other regions of Indonesia. Another of the neighbouring villages, Senaru, suffered, as a result of the earthquakes, a large landslide that caused two deaths and several injuries in Tiu Kelep Waterfall. As the earthquakes happened quite frequently, we were left a little stranded in Bayan village. We became both nervous and was warned against to travel to other areas of the North Lombok Regency. I had arranged to conduct several important interviews and FGDs in Tanjung district, but parts of the roads between our location and Tanjung are already quite damaged after the earthquakes in August 2018, and the drive can take up to two hours depending on traffic and weather conditions. Additionally, some of the participants chose to, understandably, cancel the interviews we'd made arrangements for. The situation and uncertainty of what would happen next was, to say the least, mentally exhausting and caused further delays in the data collection. We tried solving this by emailing my interview guides to many of the people I was supposed to interview so that we could do the interviews over emails, and if possible, over skype. But this, again, reduces the flow of conversation and follow-up questions. And of course, I will have to be extra careful considering personal data. This method did not really turn out to work that well, as questions seemed to be misunderstood, and it shortened the answers to questions that would require a more in depth-answer.

According to my host family and people in Bayan, the occurrence of up to magnitude 4.0 earthquakes are quite normal in the area, and it will not normally cause any severe damages or long-term panic. The first earthquake felt in the area since January was March 15th with a magnitude of 4.0 and caused a bit of nervous vibe in the neighbourhood, but nothing major. However, with the magnitude 5.8 earthquake that followed on March 17th, it was not difficult to see that many people were still traumatised by the experiences from last fall. However, while there were some damages, the villagers were for the most part able to continue their daily routines. Except for in a few particular instances, were some of the tremors made cracks in one of the local school's buildings.

5. The Lombok Earthquakes 2018

This section will give an overview of the events that occurred between July 29th and August 19th on Lombok will be explained and elaborated. The occurrence of the earthquakes, and to some extent the way national and provincial government and disaster management agencies

responded to them and why. Finally, there will be an overview of some of the previous studies and rapid assessments that have been conducted in the area after the earthquakes. They are not included in the literature review, but will be used as complementary notes in chapter 6 for the analysis and discussion, to shed a light on important aspects of the context of North Lombok and the earthquakes.

5.1. The Earthquakes

On the morning of Sunday July 29th, a 6.4 magnitude earthquake struck Lombok island affecting three of the island's districts, North Lombok, East Lombok and West Lombok (IFRC, 2018a). The earthquakes epicentre was placed in the northern part of Lombok and was followed by 66 aftershocks, with the strongest measured at magnitude 5.7 (IFRC, 2018*a*). Following the earthquake, the administration of West Nusa Tenggara province declared a seven-day state of emergency, with the disaster having claimed 17 lives and left over 10,000 people displaced (Reliefweb, 2018). One week later, on the evening of August 5th, a magnitude 7.0 earthquake occurred in the same area, which ended up killing more than 460 people and injuring hundreds (IFRC, 2018b). IFRC (2018*b)* reported that the earthquake caused widespread panic, and had many people sleeping outside, as well as injured people being treated in open areas in fear of aftershocks and further injuries. The magnitude 7.0 earthquakes were also felt in two neighbouring provinces of Bali and Surabaya (IFRC, 2018*b).*

On August 19th, there was yet a magnitude 7.0 earthquake, followed by a magnitude 6.3 shortly after in addition to several aftershocks (Reliefweb, 2018). As of late December 2018, it was reported that over 509.000 people in total were affected by the earthquakes in Lombok including 515 deaths, thousands injured and over 430.000 displaced people, while over 75.000 buildings were severely damaged (IFRC, 2018*c)*

According to the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre - 2018*a),* the Indonesian Meteorology, Climatology and Geophysics Agency (BMKG) described the earthquakes in Lombok as a series of foreshocks, mainshock, and aftershocks happening along the back-arc system at close proximity to the location of the epicentre with similar focal mechanism (AHA centre, 2018*a).* While there was altogether recorded over one thousand earthquakes and aftershocks throughout August of 2018, the total economic loss has been measured to reach over USD 528 million (AHA Centre, 2018*b,* p. 1;3).

The five districts of North Lombok were all significantly damaged, after the M 7.0 earthquake on August 5[th.] Humanity Road reported that the damages caused in the two districts featured in this study, namely **Tanjung District** had reported to be most severe with the overall damage in the district reaching 85 percent and in **Bayan district** the overall damages reached 75 percent (Humanity Road, 2018, p.1).

AHA centre (2018c) reported that approximately 98 thousand women and 80 thousand men were displaced in North Lombok after the magnitude 7.0 earthquake on August 5th. As pointed out by Cole (2018) there are no gender breakdown of fatalities. This was also proven to be difficult throughout working on this study.

As of August 6th, there were a total 460 deaths recorded, 396 of them was found to be in North Lombok. (AHA Centre, 2018).
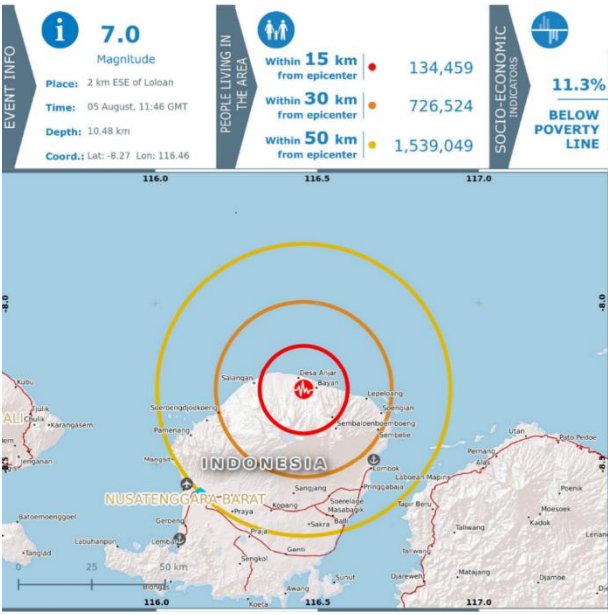
Figure 4: Impact Map of the August 5th, Magnitude 7.0 Earthquake, Lombok (Source: Humanity Road, 2018).

5.2 Disaster Risk Reduction in Lombok and the North Lombok Regency

IFRC (2016) states that since the 2004 Indian Ocean Tsunami, disaster risk reduction has become one of the Indonesian government's main priorities regarding development, and they have been able to develop a strong foundation and framework for disaster management and risk reduction. While Sagala & Wimbardana (2018) questions why, despite the increased integration of DRR in Indonesian communities, Lombok - and Sulawesi – were not better

prepared for the disasters. IFRC (2016) found that there are still some challenges and room for improvements, one main issue is that the cooperation between the local and national governmental disaster management agencies and their respective roles are unclear.

The relief and rescue efforts were slow to be implemented after the earthquakes, hundreds of tourists were stuck on Mount Rinjani, as well as in the landslides of the slopes of the volcano and in hotels (Paul, 2018). Paul (2018) suggests that the reason was a lack of machinery, and that especially local relief workers were unable to reach the most affected areas due to damaged roads and difficult conditions, which constitutes that BNPB is still not well prepared for earthquakes. Additionally, Paul (2018) suggests that the delayed response may be a result of BNPB being reluctant to call in for international assistance, claiming that they were capable and had sufficient resources and experience to deal with the disaster.

Despite the major damages caused by the earthquakes, the Indonesian government did not declare a national disaster (Pancha Nugraha, 2018). Head of Data Information and Public Relations Centre of BNPB, Sutopo Putro Nugroho (2018), claimed that the local government institutions were able to handle the situation for themselves, though with the necessary support from the central government to ensure effective and rapid assistance to the societies affected by the earthquakes. According to IFRC (2019b) Indonesia tried to stay loyal to what is referred to as a localisation mantra that states 'as local as possible, as international as necessary', and concludes that the reasons for the GoI's reluctance of receiving international aid stems from the additional burden it places on the national aid, and that international assistance should be focused on filling the gaps of capacities and assets that exist within the national government, as such it is an additional asset covering what is most needed, rather than taking over the role of the government (IFRC, 2019b, p. 15).

The challenge during the Lombok disaster was that although the local institutions was still intact and able to function, there was limited capacity to cope with the disaster appropriately (IFRC, 2019b, p, 14). North Lombok has established early warning centres, local disaster management agencies, both at provincial and village levels, but due to an overall lack of funding there are challenges in integrating disaster risk reduction into local development plans (BNPB, 2015). Additionally, IFRC (2019a) reported that disaster knowledge and awareness has not yet become a mandatory part of the educational plans of Indonesian schools. According to BNPB (2015) while some schools have formulated School Action Plans and performs disaster simulation, there are still needs for appropriate training for health facilities, but as of 2015 disaster risk reduction is only available as extracurricular activities in North

Lombok (BNPB, 2015). And DRR information and activities only reached a small part of the communities, BNPB (2015) realises the need for enhancing the communities understanding of participation and preparedness.

As for local disaster risk reduction initiatives, BPS reported that in 2014 it was reported that there were five out of 33 villages in North Lombok had access to early warning systems, while 10 villages had any form of information about evacuation routes in case of volcanic eruption or tsunamis (BPS, 2014a, p. 53;56). Additionally, BPS reported that in 2014, off all households being asked only 1.20% said that they attended disaster simulation and disaster rescue training (BPS, 2014b).

Lombok's main tourist attraction, the Gili islands, were also severely affected by the earthquakes. Aisyah (2019) reported that the residents of the Gili's are still awaiting mitigation and preparedness training from the national level. The lack of preparedness and information also became evident as the earthquakes in March occurred as people had to rely on their experiences and learned knowledge of the previous year to try to make sense of the situation. Additionally, in the immediate aftermath there were no official or public emergency bells or tsunami warning issued, and that the people in the tourism industry took it upon themselves to evacuate visitors after having received a text-message warning from the BMKG, which is the Meterology, Climatology and Geophysics Agency in Indonesia (Asiyah, 2019).

5.3 Previous studies
5.3.1 Gender Working Group Nusa Tenggara Barat (GWG)
This case study was conducted to gain an understanding of women's involvement in development at the village and region level in North Lombok. With a focus on gender-based disaster management and child rights. The results were obtained through interviews, FGDs and government documents.

A post-earthquake case study conducted by Gender Working Group (GWG) Nusa Tenggara Barat showed that there are still prevailing gender gaps in the North Lombok Region, where women in general lack access to resources, participation, involvement and activity in decision-making. Women's vulnerability was linked to them being in and around their homes during the earthquakes, and thus more likely to be trapped under and inside when they struck. GWG (2018) found in their study that elderly people and female heads of household would stay longer in evacuation camps, due to fear of living alone.

A post-earthquake case study document conducted by Gender Working Group (GWG) Nusa Tenggara Barat, found that violence against women and children, particularly female children, is a prevailing issue, due to early marriage and emotional instability. It was found that there were 45 reported cases of violence against women between the ages 19-24, 35 cases against female children, and 20 cases against male children. They also found that the issue is underreported, as domestic violence is seen to be a private matter that can cause disgrace to the family.

residential management and village meetings and women's access to recovery programs, as only heads of households are needed, which largely falls to men.

This study found that some of the causes of women's increased vulnerability is due to:

 - women's access to disaster information is lower because it relates to the level of education and information distribution lines that are head-based and formal.
- loss of livelihoods in communities during disasters and post-disaster such as farming, tourism, tailor, trade. Affects the purchasing power and family income levels. Many farmers are turning to repairman for wages.
-there is still low representation of women in the institutional determinant structure of disaster management at various levels.

GWG found that women's chores were exacerbated and added to during a post-disaster time. In addition to household work they were assisting in cleaning debris, and finding water for cooking purposes. Women's workload is increasingly heavy during disaster and post-disaster times.

5.3.2. CARE Rapid Gender Analysis: Lombok Earthquakes, Indonesia

CARE's study was written by Heather Cole, the results are based on analysis of secondary quantitative and qualitative data of local gender dynamics from before the earthquakes. In addition to interviews and FGDs with CARE Indonesia staff and partners. Responders were both young and adult women and men, and ministry and government staff and organisations (Cole 2018).

Seeing the Lombok earthquake within the gender perspective, Cole and CARE (2018) finds that one of the main challenges for women was the increased workload they faced in the aftermath. Women are in large responsible for domestic work, childcare, and providing food

for their families. Many family gardens on Lombok were destroyed in the earthquakes, which are one of women's primary sources of livelihood and food. As such, they had less access to adequate food. Additionally, clean water sources were scarce, which made it increasingly time-consuming to retrieve adequate water (Cole, 2018).

The earthquakes destroyed many schools increasing women's childcaring duties. Further, the disruption of women's income earning activities leaves them with less negotiating opportunities within the household (Cole, 2018). Another challenge posed upon women were their ability and opportunity to engage in public meetings due to increased workloads, making them dependent on their husbands giving them important information (Cole, 2018).

There are underlying social and patriarchal inequalities in many of Lombok's communities (Cole, 2018), which might be seen to be increased in a disaster situation. For instance, women often experience lower status in regard to education and income-generating activities and unpaid homemaking chores. This will in many cases leave them more impoverished and exploited sexually due to their increased needs of resources are not being met (Cole, 2018).

While there was no sex or age breakdown of fatalities at the time of the study, Cole (2018) suggests that it is likely that women were more likely to die due to protecting their children, sick and old family members.

There was evident of greater risks of women being exposed to sexual harassment and domestic and sexual abuse in Lombok. Especially in mass shelters, women were seen to be vulnerable to harassment and abuse, often due to increased levels of stress among and within families (Cole, 2018). The study shows that women felt uncomfortable living in shelters, as there was no privacy to change clothes, and concerning hygiene care. To avoid accidental exposing of body parts, many young women felt as they needed to sleep in their clothes.

Additionally, there are chances of increased numbers of child marriage in a disaster situation, in many cases because the family sees it as an opportunity for their child to be looked after and provided for (Cole, 2018).

The higher levels of domestic abuse can be due to destruction of gardens and farming facilities, many were unable to return to their livelihood activities, and '[F]or men and boys, this compounds their trauma from the earthquakes, as it undermines their sense of purpose and contribution to the household'. Additional pressures caused by loss of livelihood were, for example, frustration and food insecurity (Cole, 2018).

Women's general lower social status and education level, in addition to access to income-earning activities and unpaid domestic work make them more vulnerable to poverty and more exposed to sexual exploitation in crisis when their need for resources are increased (Cole. 2018).

Men are more likely to get access to information due to their higher rates of participation in community meetings and are responsible for communicate this information to their family members, making e.g. women dependent on their husbands (Cole, 2018).

Girl's education is often seen as less important than that of boys. Which is exacerbated in a crisis situation. Boys are often expected to be next in line for the role of head of household, and their education is seen as more crucial (Cole, 2018).

5.3.3. Indonesian Red Cross Society – Pelang Merah Indonesia (PMI)

Rapid Assessment study on Community Engagement and Accountability

The Indonesian Red Cross Society conducted 14 FGDs and interviews with 157 men and women in North Lombok, East Lombok and West Lombok between 6 -15th of August, 2018.

The most pressing concern among the affected population is relief distribution from the government and aid agencies and information about health services, in addition to information about how to respond and stay safe in the case of aftershocks.

PMI (2018) found that some North Lombok villages met challenges in retrieving information and relief support. Additionally, heads of households would have to travel far to gain access to information in the disaster aftermath. This was due to damaged roads which reduced access to remote villages. Also, 'hidden' villages found themselves in need of putting up road signs to gain the attention of aid providers.

Most of the Lombok population are literate, accounting for all age groups. Most people also speak both Bahasa Indonesia - the national language, and Sasak/Bayanese, however, among elderly there are still some people who are not as familiar with Bahasa Indonesia (PMI, 2018).

Community leaders were found to be most trusted source of information among the affected people. family members and the community Loudspeaker were also trusted sources of information (PMI, 2018).

Especially in North Lombok, family were important access to information, due to the major damages in the district. Many respondents said that they made informed decisions at the family levels through discussing the issues at hand (PMI, 2018).

Social media was also popular sources of information among younger people in North and East Lombok. They were also aware of the issues surrounding fake news and not to trust everything on social media (PMI, 2018).

PMI (2018) found that because there was a lack of accountable information about earthquakes and their occurrence, it was common for people to spread rumours. Common rumours were that even stronger earthquakes would strike and a tsunami would follow. Additionally, as was also found in this study, due to the pattern of the strongest earthquakes occurring on Sundays, it was rumoured that this was the norm. Such rumours, according to PMI (2018) causes panic and stress within and between villages and communities, while looters and robbers taking advantage and continue to spread them.

PMI (2018) found that when people were being evacuated from their homes near the coastline, especially shopkeepers, were vulnerable to robbery. When they would return to their homes and places of work, their stock would often be stolen.

5.3.4. Responses to the Lombok Earthquake, 2018 – Rapid Assessment Study

Jonathan van Leeuwen, Andrew Gissing and Ashley Avci (2018) studied 120 news articles and interviewed 146 people, 102 of the people interviewed, the majority, were tourists with the aim to analyse and identify the damages and people's reaction during and after the earthquakes. The interviewees were seen to be in different locations, situations, alone or with other people.

The most common witnessing of damage done was collapsed buildings, and objects and debris falling. Additionally, power cuts, injuries cracked walls and food shortages were common impacts. The most significant damage was observed in Lombok and the Gili Islands.

People's immediate reaction to the earthquakes in Lombok, Bali, the Gili islands were to run outside and away from buildings. 43 people responded that they themselves would run out of buildings and falling to the ground due to loss of balance. And 44 people observed other people running outside and away from buildings, making it the most common reaction. Observations concluded that screaming, crying and moving away from buildings were also

common reactions. Many of the actions were conclusive with fear of tsunamis, and looking for relatives (van Leeuwen, Gissing & Avci, 2018).

Immediate actions were most commonly to move to higher grounds, while there were reports of panic and caring for others. Most preventative actions were guided by local residents. The researchers found that many people reacted in line with them coming from places with lower risks of earthquakes (van Leeuwen, Gissing & Avci, 2018).

Fear, panic, calmness and concern were the most common feelings among their respondents, while others were feeling upset, terrified, in shock and apathetic. The respondents located at the Gili Islands reported of chaotic situations and lack of capacity to evacuate tourists and locals. Passage was offered to highest bidders and boarding was chaotic (van Leeuwen, Gissing & Avci, 2018).

6. Presentation of Empirical findings

In this chapter, the findings of this research will be presented. The findings are based on data that was gathered through observation, interviews and discussions with people living in three different villages in Bayan and Tanjung districts of North Lombok, namely Desa Bayan, Desa Sukadana and Desa Tanjung. While there are many similarities between the structures and cultures in the districts and villages, people within them would also experience the earthquakes and the aftermath of them differently because of how their societies perceive and act in terms of aspects such as, culture and beliefs norms and gender equality. Thus, the findings will be presented by theme and with respective references to the specific area to which they are relevant.

The findings cannot claim to be representative; this is because the sample is too small and the differences within the villages are to substantial to be able to generalise. In terms of the in-depth interviews there are 5 respondents from each village, while one FGD was conducted in Bayan and one in Sukadana.

6.1. Understanding the Concepts 'Disaster' and 'Vulnerability'

In this study, it was found that the understandings of disasters and vulnerability are so closely linked, as a result the general perceptions will be presented in the same sub-section, while further understandings of (social) vulnerability will be further explored separately.

6.1.1. Disasters

Throughout the research period it became apparent that all respondents are vulnerable to and has experienced disasters and its effects first-hand, but the collective term of hazard events as 'disaster' and the term 'vulnerability' are quite new concepts in all of North Lombok. All of the respondents said that up until after the earthquakes in August 2018, they believed that disasters were an act of God imposed upon them because of human behaviour and actions that would hurt the nature. All respondents said that they previously did not know that Indonesia is located in the 'Pacific Ring of Fire', or that Indonesia is especially prone to disasters such as earthquakes, landslides, tsunamis and volcanic eruptions. They were given this information by the organisations and NGOs arriving in the aftermath, and if literate or had access to internet, became aware of this by reading news online. It was apparent, however, that it was still a belief, especially among the older respondents, that events such as earthquakes are partly an act of God.

6.1.2. Vulnerability

Although the majority of respondents understood that Lombok regularly experiences floods and smaller earthquakes that usually cause only minor damages, none of them had experienced anything as damaging as the several earthquakes that struck in August 2018.

The North Lombok region is very connected to tradition and culture, it was therefore common among the respondents to search through ancient oral traditions and tales to understand the cause and impact of the earthquakes and how to deal with the outcomes. The belief that disasters are a punishment/gift from God stems from such tales. This relates to the understanding of 'vulnerability' in that the ones most affected by disaster events are those who have behaved 'badly' and thus 'deserve' to be punished. The terms 'punishment' and 'gift' were used interchangeably to explain why the earthquakes occurred among respondents. One respondent in Bayan explained it as that while the earthquakes themselves and the damage caused by them was thought of as a punishment, the gift was the sense of "togetherness" and the sense of solidarity and respect that were created in the aftermath. That is, among the people themselves, and between man (i.e. people) and nature, and between man, nature and God, which in the Sasak culture is essential. Further, they explained it as an Indonesian way of seeing the positive in the negative or; HIKMAH which she explained to mean meaningfulness and positive thinking after the disaster.

One respondent said that before she learned that Indonesia was prone to earthquakes, many believed that the volcano in North Lombok, Mount Rinjani, was angered by the way tourists

and locals had damaged its nature and its meaning. For instance, historically, the nearby villagers would only climb the mountain for worshipping and labour purposes, however, tourism has changed that and most people visiting only climbs the mountain to take pictures. Additionally, the respondent said that tourists could be vulgar and leaving garbage, the belief was therefore that the earthquakes was Mt. Rinjani acting out of revenge on the people living there for not caring for the traditions and nature. Another respondent in West Bayan explained it differently, as her belief was that the earthquakes was a punishment from God because the people in her village were violating the proper rules in the tradition of leadership. In North Lombok the bearer of the titles Raden (male) and Dhende (female) are direct descendants of royalty and should naturally hold the position of leader in the community. As the old traditions fades out, its angered God (and the spirits of the deceased) and they were punished in the form of the earthquake. She further, said that in the aftermath of the earthquake the West Bayan villagers would hold traditional ceremonies that reinforced and proved their loyalty to such traditions and their culture as spirits from the dead are often invited to ceremonies.

As a few reasonably large earthquakes occurred towards the end of the research period, it was possible to observe how the local's memories and experiences of the 2018 earthquakes and their new understandings of disaster and vulnerability shaped the villagers' reactions. It became a powerful tool to understand how people in North Lombok perceive such events and their outcomes. This will be explained further in the sections about social vulnerability.

6.2. Gender relations in North Lombok

6.2.1 Women in Society

In Bayan women and men mostly do the same types of work, many in the rice fields, but also as teachers and keeping small family owned businesses, often operated from the front room of the owners house in forms of cafes, restaurants or convenience shops, in Indonesia they are called a warung.

In the Bayan village FGD, the female respondents mostly agreed that there are little differences between men and women in their society. However, there are still significant traits of the patriarchal system left in the villages of Bayan and Sukadana, it is also evident in their culture in that women are not included in village level decision making. For example, in cases of domestic violence, the Adat council, which is made up of men, are in charge of the

decision-making and the verdict. Similar to Sukadana where cases of sexual/domestic abuse are left to the village council members who are all male. In Tanjung there is a larger city centre near the village, where women are more included in politics and decision-making. In Bayan, the majority of the respondents would agree that in the household, there is more open communication between husband and wife. The wife has a say and can voice her opinion, but the final decision is made by the husband, but this depends on the individual households.

Additionally, there is an overall certain degree on restrictions on girls and women, e.g. women and girls should not be going out alone at night. It is largely preferred and expected that they will come home before it gets dark. If they are with a male family member, there are still worries, but the expectations are less rigid. Again, this depends on the structure and relations within different households. Some respondents with parents or family members, or who themselves had studied, worked or travelled outside of North Lombok and seen other cultures and gender roles in practice were seen to have had a change in opinion. However, as one respondent said, even in these cases, one cannot excessively violate the norms and traditions, as such can give a bad reputation to the family name. One woman from the Bayan area explained in the FGD about gender relations that in near-by villages there were women's centres that will take care of women from all over the Bayan District in case of domestic violence.

One woman, whose father had travelled outside of their village, making his rules concerning his children's activities less rigid. One day she had her friend come with her to the beach, and convinced her friend to stay out later than normal, in the end both girls got in trouble by her friend's family.

In Sukadana all of the female respondents agreed that men and women have the same position as men in the society. However, there were examples of women frequently experience men "disturbing" them with what is received as a jokingly manner of 'harassment' giving them compliments and coming in to interrupt their work and while they are walking on the street. It was found that a person's level of education and a family's class/status seemed to provide a difference between respondents understanding of women's position in society. While women in a lower class in the society would explain how they met challenges posed by their gender in daily lives, women of higher education said that they rarely experienced that their gender posed any limitations or challenges.

Figure 5: Picture from women's help and empowerment tent in Sukadana Village (Source: Author, field work, 2019).

North Lombok is a region in which culture, norms and traditions play a very important role in both daily lives and in ceremonies such as weddings, funerals, childbirth and other local and traditional ceremonies. Through participation in such events – mainly funerals and weddings, it became noticeable that while gender roles in general might be less rigid, they are still very much present in preparing for and practicing ceremonies and celebrations. In many cases these traditions also still seep out into daily lives and practices. Women are generally in charge of cooking and cleaning. Cooking was seen to be a highly time- and energy consuming job, everything is made from scratch and thus several hours a day are spent preparing for and cooking breakfast, lunch and dinner. The majority of female respondents were also working full-time or part-time, either it be in the rice fields, family owned stores, schools, hospitals or with the North Lombok traditional weaving. The weaving, locally called Tenun, is a way of both increasing the economic growth by exporting and holding on to old traditions.

All respondents in Tanjung said there have been efforts to reduce gender inequalities in the society, such as women gaining access to town meetings, more equal jobs and more freedom for women. Additionally, they said that Tanjung is a growing tourist destination as it is a gateway to the Gili Islands and has thus been more exposed to different views on gender and gender roles. However, it was recognised among the respondents that in the aftermath of the earthquakes, gender concerns were being neglected and some of the already gained equality had been reduced. Additionally, these gaps were seen to increase in the earthquake aftermath in terms of women's increased domestic workload. In addition to household chores they were cleaning debris and finding clean water for cooking purposes

6.2.2 Women's School: Kapal Perempuan

Kapal Perempuan is a national organisation for women in Indonesia, the name translates: Kapal = Ship, Perempuan = Woman/female, thus woman ship. Although the women school does not directly target the issues of disaster and preparedness, the local head of the school in Sukadana explained that in the aftermath of the earthquakes, NGOs would cooperate with the school to conduct relief efforts.

It also became clear early on that the school and program played an important role in the daily lives of women in North Lombok and it became important for this research as well. That is to understand how women and men relate to each other, to daily challenges and to other pressing challenges. During a visit from the head office in Bayan, the school employee said that in North Lombok Kapal Perempuan is currently operating approximately 20 schools, while the goal is to have 30 schools operating to reach women in all villages. Each of the branches of the women school has a local woman in charge, but the head office will conduct regular visits to advice and help. The national office functions as a sort of link of communication between the state and the local villagers. Additionally, the national office makes sure that the government will provide the people in north Lombok funds to rebuild after the earthquakes. Apparently, the villagers are still waiting for further aid and funds to build more permanent homes, sheds and repair damaged structures.

In the villages the organisation Kapal Perempuen seem to engage women to allow themselves to grow, the local programmes aim to tackle issues such as, women's empowerment to stand up for their rights in society and in the family, sexuality, and work as a support system for women suffering from domestic abuse. They also hold courses in women and children's nutrition, cooking and time management. Additionally, the women's school provides classes for men in which they try to enable men to understand women and how they can contribute to the society and within the household, and both the local school leaders and women whose men had taken the classes said that these classes were highly successful.

The establishment of the women's school in Sukadana brought on fundamental changes. The local school leader in Sukadana village could inform that before the school opened in 2014, women were secluded and not allowed to socialize, go outside by themselves, work or go to school. Further, she said that many of the staff and student's husbands were sceptical to the school and how it would change the traditional systems, culture and gender roles in place. Her

taking the charge of the school, almost led to the end of her marriage as her husband was afraid of how his role and authority as a man would change. To begin with, one woman in Sukadana explained, the women school were seen as vulgar as they encouraged women to talk about sex in their meetings and encouraged them to speak with their husbands about sex.

But all of the respondents could also inform that their husbands would come around after a while, and the local school leader showed us how her husband even participated in the serving of food to guests and cleaning up after. Women in this village are now allowed to socialize, take part in village meetings, get an education and work at the same level as men. However, there are still several instances of violence and oppression against women.

In Bayan, the changes in attitude towards women started in 2000, and similarly to Sukadana, the women school has been an important aspect in achieving gender equality and at a greater level allowed women to be able to socialize, work and go to school.

6.3. Social Vulnerability

6.3.1. Gendered Vulnerabilities

One respondent said that she used to believe that disasters was God punishing women because they were breaking out of their traditional roles and purposes and becoming freer and neglecting their traditional purposes as women.

Increased workloads during the disaster aftermath was seen as one of the main issues among women. Although, very few saw this as a vulnerability.

In Bayan the women felt more vulnerable than their husbands because in general they spend more time at home as opposed to men who are at a larger degree working in the rice fields and open landscapes. All the respondents in the FGD in Bayan said they did not see any instances of Gender Based Violence (GBV) in the evacuation camps and tents, they believe this is a result of the fact that there are few to no immigrants in the village. And as most of the people living in Bayan are related, and as it is custom to marry within the village, they are all family. Thus, they would not hurt each other. In contrast to Sukadana Village and Tanjung, where there were reported instances of GBV and sexual abuse in the aftermath of the earthquakes. Here, immigration is more common, and they would not share the same relation as in Bayan.

Additionally, the evacuation camps in Bayan were set up with separate tents for men and women, and their stay in the camps were cut short, most families in the villages have a berugak or gazeebo– a traditional Lombok wall-less structure built of wooden poles with an elevated bamboo surface and a tin roof which is designed to withstand harsh weather and earthquakes - in which they can sleep. In Sukadana and Tanjung, the respondents would describe overcrowded tents, housing both men and women. The evacuation tents offered little privacy, especially for women to take care of their personal hygiene during their menstruation. Additionally, one woman explained that the tents were dark at night and unaccompanied women would experience strangers approaching them during the nights. However, in the FGD in Sukadana the majority of participants said that they generally felt as if men and women were not differently affected by the direct impacts of the earthquakes.

Three of the respondents living in Tanjung said that they were aware of several instances of husbands and young men in the village turning to heavy drinking after the earthquakes. One woman explained this as a result of frustration about not being able to work and provide for their families, and while drunk, many take the frustration out on their wives and family members through violence and abuse. Another challenge towards girls that were brought up frequently during interviews was that of early marriage. As one woman explained, it was due to the parents' lack of alternative skills and training to generate an income, and they would see marrying of their young daughters and receive dowry as the only option to make some money.

6.3.2. Culture, Society and Vulnerability

Up until about 50 years ago, there were little to no brick/concrete buildings in Bayan. One respondent explained that the first brick house in Bayan village was built by a foreign researcher in the 1970s, and in the following years there was an upsurge in people building houses of other materials than bamboo and wood. He further explained how bamboo and wood buildings are more balanced, flexible and resilient to earthquakes than bricks and concrete and, if they were to collapse, they are less likely to cause death, injuries or major damage. The North Lombok area is now, after the earthquakes, made up of a good mix of temporary reconstruction of braided bamboo houses and brick houses with provisional tarpaulin walls. During a visit from the head office of Kapal Perempuan, the majority of attendants living in bamboo houses in Bayan said they wanted to rebuild their concrete houses when they received the funds to do so. It was also explained by one villager that even if

people wanted to rebuild their houses in bamboo, these materials were much more expensive now than concrete.

Figure 6: Picture of common and current housing situations in the region. The ruins of a brickhouse in front, with a temporary bamboo house in the background (Source: Author, field work, 2019).

Before the earthquakes, across the villages all of the respondents said there was little knowledge and information about how to anticipate, prepare for and react in facing an earthquake or hazard. Most respondents in this study said that they would try to get out of the buildings that they were in and remove themselves from constructions. One respondent said he was inside his house watching TV when the first earthquake occurred, he was struggling to get up and go outside as the tremors were so strong that he could not stand up. It was also observed that people would exit buildings when the earthquakes in March occurred.

Neither did the people in the villages have access to early warning systems, training or information about disasters. However, one respondent pointed out several brand new 'evacuation route' signs in case of volcanic eruptions from Mt. Rinjani. The local government, organisations and NGOs conducted disaster preparedness training during the research period, with programs focusing on, for example, how two protect yourself in different situations such as the rice field, at home, school or at work. And during the weekly, open access village meetings there is a larger focus on disaster, preparedness and rebuilding.

Additionally, one respondent in Bayan explained the low death toll in their village – only one person died, this person was an immigrant, not Bayanese - , was due to them being evacuated or sleeping outside after the first earthquake, out of fear that there would be more and stronger

earthquakes to come. He had friends in Pemenang and Tanjung who were not made aware, and both places had higher death rates caused by the earthquakes.

6.3.3. Economic Vulnerability

In Tanjung, two respondents, who were engaged in the fishing industry told us they faced problems in that they were not able to go out to sea in August 2018 as the continuing earthquakes made them scared of potential tsunamis. One woman said this broke an important link in many families' income earning, as wives of fishermen would wait for their husbands at the shore every morning to collect and prepare their catch and finally take it to the market to sell. Additionally, another respondent said that generally fishermen did not have any other training or skills to turn to alternative sources of income. This left many women in charge of income earning as well as household care. One woman pointed out many families only option was for the wife to start up small kiosks and warungs in the front room of their homes to secure an income. A third respondent told of families in which the wives had to leave their families and migrate to more urban areas or overseas for work.

A woman in Tanjung working within the tourism industry said that they noticed a decline in business after the earthquakes, which happened in the high season. Largely, they expected this was a result of fear among potential visitors. The two main attractions in North Lombok are the Gili Islands and climbing Mt. Rinjani. She explained that the Gili Islands are especially vulnerable to potential tsunamis, and the trekking routes to the mountain was destroyed by the shakes and landslides. Additionally, many of the tourist accommodations in the area were no longer able to operate because of destruction and/or lack of visitors.

One respondent who was originally from Bayan, said she had moved to neighbouring village because she did not agree with many of the customs in the Bayan. For example, she explained that the importance and the economic costs of traditional ceremonies serves as a limitation in families' economic growth. Many traditional ceremonies demand over a week of slaughter and cooking rituals, forcing many families to save rice and cattle to be used for the celebrations instead of importing rice and using the cattle for other purposes that could be more profitable. Additionally, Bayan seems to be divided in terms of economic growth, one the one hand one woman explains that while one side stresses modernisation and accessibility, the other side wants to focus on local the local traditions of weaving, to produce, sell and export tenun clothing and bags.

6.3.4. Emotional Vulnerability

Sunday March 17th 2019, during the final two weeks of the research period, Lombok again experienced two moderate earthquakes measuring 5.8 and 5.2 on the Richter Scale, the earthquakes also triggered a damaging landslide in one of the North District's waterfall that was visited by a group of tourists at the time. This made it possible to observe how the local people's memories and experiences of the 2018 earthquakes and their new understandings of disaster and vulnerability shaped the villagers' reactions. It became a powerful tool to understand how people in North Lombok perceive such events and their outcomes.

Two of the respondents said that from August 2018 up until January 2019 smaller earthquakes and remaining aftershocks occurred very frequently. But most of January and February they felt almost nothing, so with the reoccurring hazards in March, a few days of noticeable tense atmosphere followed as villagers tried to cope with memories and the potential of more and larger earthquakes. It became apparent that it was difficult with such events, because there is no way of knowing what is to come and how the situation will 'play out'. Thus, it was observed that many turns to experiences from August as 'guidelines' to determine what is safe and possible outcomes. One respondent said that they would look for signs, such as if there are dogs in the streets and a clear sky, the chances of a large earthquake happening that day are small. In the days leading up to the largest earthquake in 2018, there were no dogs in the streets or around the buildings. People in the village were also anxiously awaiting the following Sunday in March 2019, the streets were emptier than usual, one woman said that many stayed home, and close to their family that day, as in August all the large earthquakes, except one, happened on Sundays.

Another factor was determining where it was safe to sleep. Some people were anxious to sleep inside their homes, especially if they live in brick houses or had a brick wall behind their house facing West. Bayan village is located in the slopes of Mount Rinjani, and as a result most of the houses that collapsed during the earthquakes fell towards West. It was common to see that villagers decided to sleep in the berugak which is designed to withstand earthquakes, and half of all the respondents would say that they never fully moved back into their houses and are still putting up tents on the berugak at night.
People and families would gather more frequently during the evenings, and spend more time with each other, and respondents would express a belief that earthquakes are more likely to happen after 8 pm.

In Tanjung, one woman also said that not being able to predict, anticipate and prepare for earthquakes, rising sea levels and taller waves (the latter especially occurs in the months of January and February) is very difficult, both emotionally and economically. And another respondent said that she thinks many looks for such signs as a way of coping with the uncertainty and gaining a certain control of the situation.

One respondent said that he tried to keep calm on the outside as a way of coping with their stress and nervousness, even small earthquakes could make them feel scared for what would come next. As the knowledge of Indonesia's position as a highly disaster-prone area is quite new, and with the recent experiences of massive destruction due to earthquakes, the majority of the respondents said that it helped to put on a calm face and keep doing daily chores and work to distract themselves from the uncertainty of the situation. As observed, it was common for villagers to put on a brave face when earthquakes happened and say that the shaking was common, and "do not worry, this is normal", but the change in atmosphere following the events were noticeable.

6.4. Disaster Risk Reduction and Local Attitudes

6.4.1. DRR Efforts and Progress

Due to the earthquakes having happened quite recently, most organisations and efforts have been majorly focused on immediate relief and response, rather than rebuilding society and structures. It was, however, still interesting to get a look into what people perceived to be important to consider when NGOs with a different focus would emerge in the area, and how they themselves would like to participate and contribute with to disaster risk reduction in their society.

Across the villages, in total 11 of the respondents stressed that it was important to keep raising awareness about disasters and about Lombok and Indonesia being in the 'pacific ring of fire, a disaster-prone area and what that means for the people living there. One woman working in an environmental organisation said that most of the organisation having been there so far have focused on trauma healing, but that she would like to see a bigger focus on disaster simulation, training and planning for people living in the villages as there is a lack of special training projects. She herself had attended courses in different parts of the country organised by foundations that provided special training for women of self-protection in facing different disasters, trauma healing and knowledge and would like for the people in her village

to receive similar training. A female respondent found it important to be able to feel vigilant, and not spread rumours that might not be true, the lack of information presents a challenge to gain actual knowledge about the impacts of the disaster.

There was a disaster preparedness course and training organised by the local government and an NGO in Bayan during the research period. However, one woman working with the organisation said that it is challenging to engage the villagers to attend and participate in such projects. The solution was to 'reward' the participants with IDR 100.000 (approximately 7 USD). One of the female respondents working with the NGO said that they were more concerned with daily tasks such as work, house and family care, but as the courses provided some extra cash, families attempted to attend every once in a while. A good mix of men and women attended the training programme.

In Sukadana a village meeting was held where the main focus was how to prepare the household, families and workplaces to deal with disasters and how to rebuild in the aftermath. The preparedness course was attended by both men and women, and it was encouraged to engage in the activities and share their experiences and thoughts throughout the meeting. In Sukadana, much of the disaster relief was conducted through the women's school. There were no independent or special training NGOs in the area, but different sectors were covered by people from all over Indonesia working through the women school.

Figure 7: Picture from village meeting on disaster preparedness (Source: Author, field work, 2019)

In Tanjung, all the respondents saw the emergence of NGOs as both positive and negative. One woman said that there were so many NGOs that helped with the immediate relief, and both the NGOs and the government provided the population with money and aid, which helped the families who were left without the possibility of earning an income on their own. But as the NGOs left, so did the flow of money and she said that the villagers were left helpless again. Another woman expressed a point of view in which she would rather that the

65

NGOs and the government provided skills training for those families that needed alternative sources of income, as sort of a disaster preparedness project. A third woman told of the challenges they saw within the society receiving aid from organisations that were of Christian origin and not Islam, many felt sceptical and uncomfortable in receiving help and relief from organisations with other religious believes because they felt their interests and beliefs might be neglected or not being a priority to those organisations.

At the moment, a woman working in the women's school told of a common concern over there being few NGOs left, but also said that they expect another surge of NGOs arriving with different projects with more participative methods. They would like to be able to participate in rebuilding as they are the ones that are affected and feel that they themselves are able to not just rebuild, but also help the society grow.

6.4.2. Women's Participation

The majority, 10 of the female respondents across the villages expressed particular interest in women specific programmes concerning disaster risk reduction and knowledge for women. And that these programmes should cover aspects such as how to act and respond quickly to disasters and conflicts, property protection, and how to protect themselves whether they are at home, in the rice fields or at work. Five of the respondents said that women have gained more access to participate in organisational work over the last couple of decades, depending on the different areas. In Bayan four of the women said they are directly encouraged by their husbands to take part in different projects.

There was a general agreed understanding that disasters can equally affect men and women and that women's role and possibility to participate in disaster risk reduction is important. In Sukadana one woman said that during the immediate relief stage, women's role mostly consisted of cooking for the community, for village meetings and their neighbourhoods. Additionally, she said that she and her friends did not want to participate in other ways than with preparing food as this was what they knew how to do well. There were, however, many women who also felt that they could participate by learning about disasters and how to deal with them and give this information to their family members and friends who did not have the opportunity to attend training courses. In Bayan, one respondent said that a woman's role in disaster risk reduction would be very important because of their position in the household which means that they can prepare for potential disasters in the home, make their families

aware of what is important to consider within the household. In Bayan, women also felt that disasters and special courses and training for women makes women stronger and lets them collaborate on dealing with the impacts together which in turn can create a sense of 'togetherness' and that a strong feeling of solidarity can build a stronger community and allow women to become even more 'free' within their relations and society.

Summary of Findings

My findings show that, in North Lombok, there is a general lack of access to information about disasters and knowledge about their region's and their own susceptibility to natural hazards and disasters. Disasters and vulnerability are by all means relatively new concepts among my respondents. There is also a lack of warning systems, as well as earthquakes being difficult to predict.

It is also revealed that there are elements of fatalism involved in the local understanding of why a disaster happens and who they happen to. The belief that disasters and hazard events were acts of God or nature was the general understanding of such events until recently.

Smaller earthquakes are common in Lombok, which have led the islanders to not be too intimidated by their occurrence. Disaster preparedness and risk reduction was not seen as a priority in some of the communities, as they were more concerned with more pressing issues that they face in everyday lives.

In terms of vulnerability, gender was in local contexts not necessarily seen as a determining factor in how people were directly affected by the earthquakes. There was, however, different experiences according to gender in the aftermath. When looking at development and vulnerability reduction, there was a wish of rebuild brick houses, despite a general understanding of materials such as wood and bamboo causes less damage.

Industries, such as tourism and fishery, were particularly affected by the earthquakes. The economic situation of people engaged in these industries can be severely altered, and there is generally a lack of and access to training and abilities to achieve additional skills. Traditions and cultural factors are also important for the generation and level of economic vulnerability.

It was found that because Lombok, before 2018, have not experienced earthquakes of such magnitude previously. So, to cope with fear related to recurring moderate events, they rely on their own experiences from the previous earthquakes and uses their learned knowledge to try

to find a sense of control. Cultural aspects show that respondents use traditional buildings as safe places.

Participation was seen as a necessary step forward towards a more prepared and including community. Women wanted to participate on different levels. While some saw the need for comprehensive women specific projects, others saw it as more convenient if they could participate doing tasks they already knew how to do.

7. Analysis and Discussion

This chapter will analyse the key findings that were presented in chapter six in relation to the concepts and theory that were elaborated in the literature review of chapter three. The vulnerability of people in North Lombok will be assessed through the PAR model. As such, root causes will be discussed in terms of local perceptions on vulnerability and disaster knowledge, cultural context, gender and gendered vulnerabilities will also be considered in this section. Second, dynamic pressures will concern the current state of local institutions and economic growth and urbanisation due to tourism. And third, unsafe conditions will regard unsafe buildings, and the conditions of national and local disaster management. The specific focus will consider cultural beliefs and customs, in terms of the Sasak tribe of Lombok, and a lack of information and resources. Fatalistic beliefs were recurrent during the research period and emerged in relation to most of the research questions, as such it will be revisited throughout the different sections of this chapter.

7.1. Assessing Vulnerabilities through the PAR Model

This study applies the PAR model, as presented by Wisner et.al (2003), as a simple tool for assessing people's vulnerability to the cause and impacts of earthquakes in North Lombok. Through the PAR model disasters are seen as a product of three particular social components one side - namely root causes, dynamic pressures and unsafe conditions, and one physical or natural component on the other, as is in this case, the earthquakes themselves. As the model is static, it can exacerbate the separation of the disaster event itself and the social processes that underpins the impacts of a hazard, as such it should be noted that the using PAR model is rather a way of illustrating the impact a hazard has on vulnerable people (Wisner, et.al, 2003, p.91).

7.1.1. Root Causes

Local Perceptions and Disaster Knowledge

This study finds that there was a general lack of awareness regarding disasters and hazards in North Lombok, which can in large part be attributed to inexperience and the fact that, before 2018, the inhabitants had never seen earthquakes of such magnitude, or that caused that much damage. Gaillard and Texier (2010) refers to Lavigne et.al (2008) stating that the way people

understand disasters are a result of the local socio-historical and ethno-political contexts they are a part of. And as Bankoff & Hilhorst (2004) notes, to understand people's reaction and responses to hazards, it is important to consider their knowledge and perceptions about vulnerability and disasters. The level of knowledge about can also be reflected in the most common reaction to the earthquakes among the people of Lombok.

None of the respondents were aware that Indonesia is located in the Pacific Ring of Fire prior to the earthquakes, or what could that mean for them. As found in this research and by Van Leewuen, Gissing and Avci (2018) people's immediate reaction to the earthquakes was to run outside and away from buildings was common among respondents, can reflect, in some ways the level of disaster awareness, because as van Leeuwen, Gissing & Avci (2018) states; local and international agencies and authorities suggests the most proactive actions are to "drop, cover and hold". After the earthquakes, PMI (2018) found that because there was a lack of accountable information about earthquakes and their occurrence, it was common for people to spread rumours, which lead to stress and confusion. Additionally, as pointed out by one of the respondents to this study, she learned that it would be important in the future not to spread or believe non-confirmed rumours that occurred in chaotic situations. The spreading of rumours was also seen in relation to coping mechanisms in North Lombok, due to the uncertainty of the situation, they wanted to make some sense and try to feel in control by referring to previous experiences.

Twigg (2004) argues that [women] often are aware of their vulnerabilities and what makes them vulnerable. Vulnerability in North Lombok was considered to be mostly attributed to people's behaviour towards nature and God, which was linked to the main aspects of way of life in North Lombok which is concerned with being respectful of and grateful for the resources they have been given by God. In that sense, Heijmans (2001) claim of vulnerability often being a somewhat unknown concept among local people, might be more appropriate in this particular context. Due to ancient knowledge and traditions they have learned to live with potential risks inherit in their location for generations and have developed their own strategies for dealing with them (Heijmans, 2001, p. 10). However, one common reaction to earthquakes among the respondents were to try and normalise the situation and go about their daily routines, it was also explained that while they might seem calm on the outside, the hazard event would make them worry about their families and livelihoods. In a similar thought as Bakoff and Hilhorst (2004) is Singh et. al (2014) who recognises that to understand

vulnerability, people's perceptions and knowledge are important factors, and one has to look beyond a community's past and present relation to what disasters and development is.

Cultural Beliefs and Customs

Cannon (2008b) argues that there is still underlying understanding of disasters being something natural. This was evident in North Lombok as there was an overarching perception of disasters as being acts of God or as forces of nature. Which can also be linked to one of Twigg's (2004) disaster myths: *"Disasters are acts of God (which means nothing can be done about them) or acts of nature (which means that the problem can be resolved by scientific or technical interventions alone"*. Which in the case of North Lombok was still a highly relevant perception. Inhabitants in the region is still largely connected to their Sasak religion and culture, in which the fatalistic and animalistic elements are clear. The earthquakes were seen as an act of God. Gaillard & Texier (2009) finds that such a fatalistic perspective in a disaster context is often seen as resulting in low perceptions of risk.

Additionally, McClure (2017) finds that fatalistic views on disasters leads to less focus on disaster preparedness, as people often feel as they cannot do anything about the outcomes of them. As one of the respondents in this study pointed out, the ones who were most affected by the earthquakes, deserved it and was punished by God because of their behaviour. This can be seen in relation to what McClure (2017) refers to as the mental modes regarding natural hazards, and the perceptions of people regarding what processes underpins a hazard, i.e. the social, physical and engineering factors. On the other hand, many respondents expressed interest in increasing the level of preparedness in their village after the earthquakes.

McClure (2017) and Wallemacq & House (2018) finds that, especially in relation to earthquakes, people tend to feel helpless to the causes and impacts, due to their highly unpredictable nature. Which was by some expressed as a reason for villagers seemingly being uninterested in the preparedness courses and also be a source of remaining fatalistic perceptions about them. On the other hand, with new information about earthquakes and disasters, it was found to be important to the people across the villages to keep raising awareness about disasters and how Indonesia is disaster-prone. How to prepare for, and deal with disasters, and training for people who needed alternative income sources in case of certain hazards. As such, the results were not entirely conclusive in how people in the region relate to the occurrence of potential future events.

On one hand, Sen (2017) finds that it is important to note that while it is necessary to consider cultural and local aspects when dealing with disaster situation, one should also keep in mind that cultures and tradition can be a foundation and excuse for maintaining inequalities and hinder social growth. However, the findings show that cultural and religious principles can be valuable in difficult times. Such as the Sasak Tribe emphasising the principle of togetherness, which is based on a notion to keep together in terms of everyday lives and during traditional ceremonies (Galang Asmara, 2018). Togetherness was brought up by several of the respondents in relation to the earthquakes, one woman explained that she felt a strengthened sense of togetherness in the aftermath as people would seek together and help each other through the difficulties they faced. It was also found that Muslim women were sceptical to receive aid and assistance from organisations with other religious views, Gaillard & Texier (2010), religion is always embedded in places and cultural contexts and should be included in disaster risk reduction efforts. However, it should be done in a way that promotes equality and non-discriminatory practices (Sen, 2017, p. 4).

Local customs are important in recognising the reasons for people's vulnerability, and how to reduce them (Bankoff & Hilhorst, 2004). In North Lombok, the potential challenges of customs and vulnerability can be illustrated by the traditional practices in North Lombok. As can be seen in light of Cederroth's (1995) study of the Sasak religion in Bayan village. He found that in Bayan one of the reasons that people remain poor is due to costly traditional ceremonies. When there are ceremonies for weddings, births and deaths, it is expected that the hundreds of people from surrounding villages will attend to pay respects, and the host of the ceremony is expected to hold and pay for a communal meal for all attendees, as can be seen in figure 8, below. Such ceremonies are very important in Bayan district, as the belief is that they will ensure that people stay healthy and avoid any unluck (Cederroth, 1995, p. 17-19). As explained by one of the respondents, when the earthquakes was seen as an act of God, one of the reasons were believed to be that they were punished for violating their traditions in terms of nobility and village leaders, as such they would hold ritual ceremonies to make amends and redeem themselves. It was also observed, however, during a funeral in Bayan that attendees would bring gifts, mostly household supplies such as rice and cleaning equipment for the family of the deceased to ease their burden. In this study it cannot be determined whether this was a long-standing traditional custom or something that have developed recently to reduce the cost for the grieving family.

Figure 8: Communal meal being cooked for funeral attendees in Bayan District (Source: Author, Fieldwork 2019).

Gender Perceptions in North Lombok

Gender equality is improved in Indonesia in general (UN Women, 2019; World Bank, 2013). In North Lombok women's empowerment at the local level have been done with the help of Kapal Perempuan, the women's school, which have led to greater acceptance of women as income earners and being able to study for instance. Kapal Perempuan tackles issue of women's empowerment in societies were women experience different levels of oppression and might need outside assistance. It functions also as a channel through which women can voice their opinion and to promote their rights. Additionally, the school has to some extent been able to build a communication between men and women in the household so that men can see in what ways women can contribute to society outside of their homes.

The perspective on gender equality and inequality differed among the villages. While Bayan village respondents did not feel like gender inequality was a problem, there was, however, both reported and observed certain differences. But they might have seemed more severe seen with an outside perspective and Western notions of equality than they would be felt by the villagers. At this point, it is important to be aware of preconceived ideas about gender in society and one can draw parallels to Cannon (2008a) and his notion of outside and inside perspectives on vulnerability. In a sense, what may be seen as gender inequalities from the outside, may not be experienced as a major issue or difficulties by the people who are living in it on a daily basis. For example, women's exclusion from decision-making processes in the

73

Adat council at the village level, and women having less authority in the household than their husbands, was not necessarily expressed as an issue for the villagers. And as Fothergill (1998) states, it is also important to consider that gender differences do not necessarily mean inequalities, but the possible ramifications of these differences in daily lives and disaster times can be significant.

It did become evident that the levels of gender equality in Bayan and Tanjung districts had been significantly improved over the past 20 years, in terms of women's access to education, employment and being able to socialise. However, traditional gender roles were evident in ceremonies, and in the daily lives of women where they were expected to take care of the household, and cooking, which are particularly time-consuming activities. This often leads women unable to participate in community meetings and in less power of decision-making than their male counterparts (Cole, 2018; Platt, 2017). Fothergill (1998) finds that traditional gender roles also often become evident in how people respond to disasters. Women are more likely to take care of the house, children and conduct small repairs within the household, which are often not seen as equally 'important' as the tasks conducted by men. Men are more likely to take on an active role in the public sphere, participating in search and rescue and other jobs that require physical strength.

Despite increased levels of employment and education opportunities for women, and the general understanding of equal employment opportunities for men and women, in North Lombok, Platt (2017) finds in her study that there are still gendered ideas of work in terms of types of employment, for example the stigma against women working in the tourism sector. This was to some extent evident in smaller tourism communities, such as Senaru village, but in and around Tanjung, it was more common to see women working in this sector.

Platt (2017) and Cole (2018) finds that many women from Lombok migrate to the Middle East, Malaysia and other countries where they mostly work as household assistants, due to limited employment opportunities. This was also seen among the respondents to be an increasing situation after the earthquakes. It was explained that for many families, migration for employment became a solution for many families struggling economically post-earthquake.

Platt (2017) claims that employment opportunities for women are limited, and their social status, economy and entering into adult status is often conditioned by their marital status. These factors, including the fact that in rural Sasak communities, women are seen as ready for

marriage at the age of 16, are resulting in early marriage being a continuing practice in Sasak societies (Platt, 2017). Lombok has one of the highest rates of child marriage in Indonesia, in particular girls between 15-19 years of age. Early marriage was also seen among respondents to increase during the earthquake aftermath, as sources of livelihoods and income was disrupted, many families saw no other options that to marry off their daughters for dowry. Another side of the coin is as Platt (2017) claims that Lombok also has one of the highest divorce rates in Indonesia, and men are the ones with authority to initiate divorce (Platt 2017).

While Gender Working Group (GWG) states that gender violence in general is still a prevailing issue in North Lombok, it can be hard to contest, because, as suggested by the GWG case-study, there might be large numbers of unrecorded instances of domestic violence. In Bayan village, female respondents were adamant that there were few instances of domestic violence in their community, because of close relations. On the other hand, it was also explained that there were several centres in neighbouring villages for women experiencing domestic violence that women in Bayan would go to if needed. Which is contradicting the statement of domestic violence not being an issue. And can be related to what Bradshaw (2004) states, in that domestic violence, whether it occurs in the private of homes or in the public sphere in evacuation camps, is not considered to be a social problem, but as something private and only concerning the respective households and its members. GWG also found that in North Lombok, an additional reason for many women being hesitant to reporting domestic abuse is that by reporting such issues they can bring disgrace upon the family. Thus, many cases of domestic violence can go unrecorded and violence against women still remains a somewhat hidden issue. Additionally, it was found by Cole (2018) that there are certain cultural norms in North Lombok that might make it difficult for women to detect and recognise domestic violence because of their status and roles as women and wives.

While Berke, Kartez & Wenger (1993) suggest that disasters and post-disaster situation may provide an opportunity to strengthen different sectors of social development, such as DRR, gender concerns and economic growth. It was experienced in Tanjung that many of the strides and efforts towards increased gender equality was destroyed or neglected after the earthquakes. Which is more in line with Khan et.al (2008) who claimed that disasters can, for a period of time, paralyse people's lives. And underlying gender differences, for example, women's general lower status and lack of economic power can significantly affect them in daily lives, they can also be a source for maintaining and reinforcing inequalities during a crisis (Fothergill, 1998, p. 23). However, for instance in the case of if women as heads

households, Wiest et.al. (1994) suggest that with proper training, political support and awareness raising this can be a source of women's empowerment. And, as such, challenge patriarchist norms of excluding women from decision-making and community participation. Moreno (2018) also points out that disasters can be seen as an opportunity to challenge unequal power relations and patriarchal structures and gender relations "through building resilience over time".

Gendered Vulnerabilities

As pointed out in the literature review, the human impact of disasters is in large determined by social conditions, which means that people can also, at least to some extent, influence the ways in which they are affected (Neumayer & Plümper, 2008). It was also emphasized how men and women are disproportionally affected by disasters, with women being more adversely affected, in terms of their income sources and daily caretaking of house and children and exposed to sexual and domestic abuse (Enarson et.al, 2007; Fothergill,1998; Ikeda, 2009).

In the GWG case study, it was found that there still was a gap in employment opportunities, which was supported by Platt (2017) in the previous section on gender in the region. However, women mostly felt as if they had the same employment opportunities and could work in the same areas as men. It was also observed that women were often responsible for picking up additional labour as sources of income, such as, kiosks and small convenience stores in the disaster aftermath because their husbands did not have the necessary skills to do other types of work if their livelihoods were destroyed. Additionally, women were assisting in cleaning up debris and finding clean water for cooking purposes. GWG (2018) found that women's time and schedule was stretched, while for men their chores and labour stayed mostly the same with more time for leisure activities. Several scholars, including Enarson & Ckarabarti (2009), Fothergill (1998) & Ikeda (2009), suggest that the underlying social constructions and gender norms are main reasons for how disasters are experienced differently by men and women.

Bradshaw (2004) argues that there is a link between how households are operated and how households will respond to an emergency. While women in the villages being studied did not feel restricted per se, there are some 'concerns' linked to their mobility. While most women are working from their homes, whether it being in their warungs, or doing domestic work,

some said that they had learned that this made them more vulnerable to the earthquakes. As Neumayer & Plümper (2008) points out, that especially during earthquakes, women working from home are more vulnerable to the potentially collapsing of buildings. Additionally, many women experienced that their mobility is restricted as they should not be going out alone in the evenings. Which can be supported by Neumayer & Plümper (2008) and Twigg (2004) in the sense that in many societies, women are dependent on male family member's permission to leave the home.

In North Lombok, however, it was also expressed that women's mobility, roles and relation to their male family members were contingent on the levels of education and class within the family. Higher levels of education and experiences outside of the indigenous villages within a household are less restrictive over women's mobility and their role in the household. Even with the claims of Cole (2018) of women in North Lombok being more vulnerable due to them spending more time within the households during the earthquakes, gender breakdowns of the earthquake death tolls are still not available. Neither was it possible to derive exact numbers while in the field. As such it is difficult to contest such claims on gendered vulnerability in this specific case, as at this point, we can only rely on the tales of the respondents.

Additionally, it can be useful to take into account the general critiques on the way that local communities are often perceived as being a place of harmony and with incontestable human relations (Cannon, 2008a; Williams, 2004). While there is evidence of communities being the place of underlying (gender) differences and existing power relations (Cannon, 2008a; Hickey & Mohan, 2005; Wiliams, 2004). The findings both support and defies these critiques in the different communities, and regarding different aspects. Such as Bayan village, where close-knit relations and togetherness within the village was expressed as reasons for women feeling that their vulnerability to the earthquakes were mostly equal to that of the men in the village, and them not being vulnerable to domestic and sexual abuse. Additionally, as women and men in Bayan have the same types of work and have achieved a general level of gender equality in their society, which are factors Neumayer & Plümper (2008) suggest that make them equally capable to deal with disaster impacts.

It was, however found that, in Sukadana and Tanjung, women were vulnerable to sexual abuse in overcrowded evacuation camps, often seen in relation to there being higher levels of immigration within these communities than in Bayan. And Cole (2018) found that in mass camps where many people were stowed together with people they did not know, abuse and

harassment were more frequent than in smaller camps. This is in line with Enarson et.al. (2007) and Wiest et.al (2004) who argues that especially displaced women are vulnerable to increased violence in the wake of a disaster. Further, the findings show that there was no privacy for women in terms of personal and menstrual hygiene, which may be a subject of taboo in many indigenous communities (Neumayer & Plümper, 2008, p. 556).

In addition, respondents said that women in Tanjung and Sukadana were subjected to domestic violence from their husbands and male family members in the aftermath, because of increased alcohol abuse. Which can be seen in light of Fothergill (1998), who suggests that men are prone to consume more alcohol during the aftermath of a disaster. As pointed out by one woman in this study, she saw the increased consumption of alcohol as a sign of frustration amongst men who could no longer provide for their families and perform their work, because they did not have any other skills or access to additional training in other lines of work. In addition to the previously mentioned suspicion of a relatively large number of unreported numbers of domestic violence in general, Enarson et.al (2007) argues that police and law enforcement are less concerned about domestic conflicts in the aftermath of disasters, as their resources are needed elsewhere.

While men tend to be more likely to increase their alcohol abuse in disaster aftermaths, women are more likely to experience mental health issues such as symptoms of Posttraumatic Stress Disorder (PTSD), anxiety and stress, as well as depression (Fothergill 1998, p. 19). The role of caregivers can also be an additional burden for women during a disaster situation due to physical and emotional exhaustion. Additionally, in the role of homemakers, women's burden is expanded in a disaster situation, and women often put the needs of her family before her own, and Fothergill (1998) suggest that this can cause a woman to lose her 'sense of self'.

That is not to say that men do not experience such issues as well (Fothergill, 1998, p. 19), there were signs of lingering PTSD through observations made after the March 2019 tremors. However, while there might be gendered concerns and fears towards earthquakes, there were no evidence of men and women being differently affected mentally by the August events. For example, considering the number of people who are still hesitant to sleep in their homes, both men and women chose where they wanted to sleep individually. There were different levels, while some refused to sleep inside all together, some would sleep in their berugak only after there had been tremors.

78

Neumayer & Plümper (2008), Enarson et.al (2007) and Twigg (2004) suggest women's vulnerability is linked to gender roles. And as UNICEF (2019) visited post-earthquake North Lombok they stressed the importance of increasing awareness among young boys and men about women's alternative social roles and opportunities. However, some respondents said that they felt as if women were more vulnerable to disasters when they were no longer bound by their traditional roles, and the earthquakes were nature's and/or God's way of punishing them. On the other hand, according to Fothergill (1998) it is women's general lack of status in the society and power that often leaves them more vulnerable to disasters.

It was also pointed out by Peek (2017) that women's status and economic power is dependent on their marital status. Which coincides with Cole (2018) who found that in North Lombok especially widows and single mothers are subjected to inequalities in the aftermath of the earthquakes, in terms of buying food and water, help to build their shelters and the risk of sexual exploitation to acquire these goods. In which Neumayer & Plümper (2008) argues that women and women headed households often have less negotiating power, and relief supplies are often unequally distributed to women in the aftermath of a disaster due to their social status (Fothergill, 1998; Neumayer & Plümper, 2008).

Perceptions on Women's Participation in DRR

Twigg (2004) finds that there have been instances in which women have been discouraged and beaten for engaging in community activities and organisations. The findings show that women felt encouraged to participate in DRR by their husbands and family members – on different levels and in different organisations. However, it was only five years ago that the local leader of Kapal Perempuen in Sukadana was threatened with divorce because she wanted to empower women in her community. As such, whether women are encouraged or discouraged from participating, was seen as results of how distinct and engrained gender roles and norms are in different communities.

Enarson et.al (2007) states that men and women have different capacities and strengths they have achieved through their networks and social relations. In North Lombok women's participation was seen as a possible source of empowerment, as it gives them further strength and greater freedom within their society as well as it can expand their roles from housewives to active community members. Enarson et.al (2007) also recognises the importance, not only

to consider gendered vulnerabilities, but also put a focus on the capacities of women and girls in a disaster contest, so as they are not merely seen as helpless and in need of rescue.

Fordham (1999) also finds that such capacities are often forgotten in DRR. Fothergill (1998) finds that there also are gendered responses to disasters, often following typical gender roles. She explains that while women are more likely to take care of the house, children and conduct small repairments within the household, tasks in which she calls 'invisible' compared to the responses of men, who tends are to take on an active role in the public sphere, participating in search and rescue and other jobs that require physical strength.

On the other hand, while there was a certain degree of agreement regarding there being a need for women specific risk reduction programmes, there were differences in how the female respondents felt as they wanted to participate. Some women were content with providing food for the village meeting and councils, while others wanted to be part of the risk reduction process themselves. And as pointed out by Twigg (2004), the ways in which women are able to participate depends in large on their everyday schedules and time constraints. As such, with additional burdens in disaster aftermaths, being heavily involved in community participation might become difficult. Enarson et.al (2007) also points out that gender differences in terms of employment, marital status and household structure are important concerns to address in developing sustainable and gender sensitive disaster risk reduction.

7.1.2. Dynamic Pressures
Lack of Local Institutions and Policies

When talking with North Lombok residents, there were no mentions of local institutions that were consistently concerned with disaster preparedness before the earthquakes. And as pointed out by BNPB (2015) and IFRC (2016;2019b) local disaster management institutions, although present, are in need of improvements. The main challenge in ensuring effectiveness and sustainability of DRR efforts at the local level is the relative lack of funding and poor implementation (BNPB, 2015). At the time of the research, access to awareness information and early warning was still not ideal, however, there was also a greater focus on the work of providing the local communities with these tools in case of future events. And it was seen among the villages to be a remaining general lack of training and appropriate skills to respond to the earthquakes appropriately. Which, as pointed out by Hickey & Mohan (2005) is that one of the main issues of decentralised development efforts are the challenges faced by local

authorities to 'overcome socio-economic disparities' and failing to consider existing local power relations. And Twigg (2004) points out that decentralisation can force local institutions to deal with responsibilities that exceeds their capacities and resources.

According to BNPB (2015) there have been conducted training in risk reduction for local officials, but it is also reported of a lack of stable allocation of funds poses a challenge to such courses being held regularly.

Despite there being established warning systems in North Lombok by which the communities receive disaster warnings by text-messages, local authorities face challenges in terms of the early warning systems caused by limited infrastructure and supporting facilities (BNPB, 2015). According to BNPB (2015), the text message based early warning systems were developed in cooperation with local communities, drawing on local knowledge, experiences and the media. The disaster management agency recognises that utilising local knowledge is important to ensure and encourage community participation in early warning practices. The government issued a tsunami warning after the Lombok earthquakes through text messages, which were received by the North Lombok population. However, as Pelang Merah Indonesia (The Indonesian Red Cross Society) found, there were time constraints concerning informing the population about the dangers of aftershocks.

The challenges facing many localities are due to there being a lack of specific disaster mitigation strategies, such as building codes and evacuation infrastructures. Sagala and Wimbardana (2018) finds that the ideal situation is that these concerns are clearly regulated at a detailed spatial plan level, but that only 40 – out of 540 – Indonesian districts have developed such spatial plans. Lassa (2018) also found that local governments across Indonesia are reluctant to comply and endorse appropriate building regulations. Local North Lombok administrations are yet to implement the national building codes they endorsed in 2011, as such processes takes time (Lassa, 2018). Additionally, local communities are not receiving proper planning guidelines from the appropriate ministries, as they are yet to be developed or released. It is also suggested by Sagala and Wimbardana (2018) that disaster risk reduction is not a priority for local administration, which they suggest is evident through the financial challenges they face. According to them, the annual local budget for DRR is only slightly increased, and local governments rather focuses on other concerns in their communities, such as poverty and health.

Rapid Urbanization

One of the dynamic pressures concerning especially Tanjung district is that of rapid urbanisation. The region is growing in terms of tourism, being one of the closest gateways from Lombok to the Gili islands, there are a growing number of accommodations and building aimed at the tourism sector. This industry also provides several employment opportunities and a surge of migration to the area. In a way, this can be seen in relation to the concern that modernisation also challenges traditional knowledge and capacities to absorb disaster shocks, which is suggested by Pelling and Uitto (2001), such as the alteration of building structures and material, and the influence of western cultures and merchandise. Additionally, as traditional and social support systems are not adequately replaced or included with the emergence of more urban societies (Pelling & Uitto, 2001, p 56).

Pelling and Uitto (2001), finds that urbanisation, especially in small islands, causes the inhabitants to be faced with different and greater natural hazards, as risk is more concentrated, and can lead to disproportional access to urban services and basic needs. Additionally, another result of urbanisation can be related to the aspect of physical vulnerability, presented by Khan et.al. (2008), which is based on the physical factors of a community and people, such as buildings and infrastructure.

And, according to Pelling & Uitto (2001), urbanisation also might lead to informal settlements in hazard-prone areas and diminish important local knowledge and social networks in favour of state led welfare projects.

7.1.3. Unsafe conditions
Unsafe Houses

As pointed out in the literature review, historically, it was common for people living on the Pacific Ocean islands to build flexible structures that would tolerate harsh weather and the movements caused by earthquakes (UNISDR, 2004, p. 6). But over the years, concrete buildings have been seen to become the norm in north Lombok (Rakhman, 2018).

In North Lombok, 80 percent of all buildings were severely damaged or totally destroyed (Willcock, 2019). The buildings that collapsed due to the earthquakes were the poorly constructed concrete structures. In this case McClure (2017), and his perspective on fatalism in terms of controllable and uncontrollable factors and widespread damage. The more damaged houses and buildings in one area, the more likely it is for the population to attribute

the damages to be uncontrollable, and the less likely they are to believe they can prevent it (McClure, 2017) Within the Bayan district, the villages seemed to have different perspectives on whether they could do anything about disaster impacts. And although local governments have authority over building codes and that there have developed laws and regulation regarding housing structures, the implementation and monitoring systems are weak (BNPB, 2015).

While many people in Bayan village wanted to rebuild their concrete homes after the earthquakes, Rakhman (2018) found that in the North Lombok village of Beleq, the villagers wanted to go back to traditional houses after the earthquakes, because they saw that these houses were more able to withstand the movements caused by an earthquake, and people realised that such structures were more in tune with nature and its forces. In contrast to Bayan, Sukadana devoted a village meeting to disaster preparedness and information on how to rebuild more sustainable houses. Further, Rakhman (2018) finds traditional constructions are a symbol of preservation of tradition and culture, which was found to be important to the people of North Lombok during the field work. At this stage, there's a division between maintaining old traditions, and keep modernising. Rakhman (2018) pointed out, traditional houses are often seen by the Indonesian government as a sign of poverty. On the other hand, in this study it was found that, especially after the earthquake, the more expensive building materials was, in fact, bamboo and wood.

Many North Lombok villages are located in the slopes of Mt. Rinjani, making the housing conditions even less able to withstand earthquakes, many respondents, especially in Bayan village, were fearful to sleep inside during the aftershocks and after the earthquakes in March because they had seen in August how most houses collapsed towards West. This resulted in a sort of domino effect, in that not only the house collapsing, but also causing damage to a neighbouring building. This supports Wisner et.al. (2003) and their recognition of how hazards and environmental opportunities are created by spatial variety of nature.

Economy and Livelihoods at Risk: Agriculture and Fishing
According to Food and Agriculture Organization of the United States (FAO, 2017), one of the most significant ways that agriculture and farming industries are affected by disasters is through reduced production rates. Which in turn causes loss of income and reduced economic

status for farmers and fishermen and the value chain that are part of their livelihoods and economic gains from their labour.

Lisa Westlund (2007) argues that in many developing countries, fishing might not be the main source of income for families, but rather an additional income generating activity to help sustaining their livelihoods and reducing the possibility of them falling deeper into poverty. Additionally, she finds that when people's normal livelihoods are disrupted, e.g. by a disaster, many turns to fishing as a safety net and alternative source of income (Westlund, 2007). This was not the case for many people along the coast of North Lombok, however, where many households' main livelihoods were fishing. This, and because they lacked alternative sources of income and skills to perform other income generating activities, fishermen and their family were left in danger of becoming more and/or remain impoverished. Additionally, if livestock are lost in a disaster it can also directly impact on women's economic well-being (Fothergill, 1998, p 23). Which can be seen in line with Cole (2018) and her findings in North Lombok of the destroyed family gardens and the lack of adequate access to food after the earthquakes that followed.

Tourism

Lombok has become one of Indonesia's biggest tourist destinations and the island lost major income sources due to tourism facilities being destroyed in the earthquakes (Tuapetel, 2018, p. 376). Bayan District, the home of an ancient bamboo mosque, also notice the effects of growing tourism in the region, as neighbouring villages such as Senaru, provides easy access to Mt. Rinjani trekking and visits to several waterfalls, in addition to allowing domestic and international visitors access to other traditional North Lombok sites, the industry itself, showed issues in being able to run a sustainable business model in terms of preparing and guiding their staff and visitors, which again reflects the level of knowledge about the occurrence of a disaster.

In addition to many popular tourist destinations being located in disaster-prone areas, the people in them and their visitors also become even more vulnerable due to tourists not being fully aware of the local risks (Faulkner, 2001, p. 142). Faulkner (2001) also points out that tourist agencies and organisations often do not have developed appropriate strategies in case of a disaster. It could be linked to the situation in North Lombok, as many of the buildings used for the tourism sector was also destroyed. But it is not necessarily conclusive, due to the major damage that was done in general. However, Van Leeuwen, Gissing & Avci (2018) found that many tourists had to rely on the knowledge of locals for guidelines on what to do.

And as was found in this study, many who were in the tourism sector did have trouble in terms of rebuilding their business. There are contrasting reports of whether any tourists were injured or killed. Head of BDNP public relation Nugroho claimed that no tourists were killed, but that several were in shock and injured. Vassen (2018) from Al Jazeera, reported from Tanjung after the earthquakes where many tourists were, lost, confused and scared. Additionally, the reporter found that there were no arrangements of transportation, food or water available for tourists.

Respondents in this study working in the tourism sector reported that as the earthquakes occurred in during the tourism season, many visitors left the island shortly after the events. And the locals in the industry were worried for the following high season, that is if people would be afraid to visit the island. Rachmadea Aisyah reported for the Jakarta Post (2019) that the number of both domestic and international tourists were significantly reduced after the earthquakes. With reference to the Ministry of Tourism in Indonesia reporting that between September and December 2018, the number of tourist arrivals decreased by 66 percent compared to the previous year (Aisyah, 2019).

Lack of Disaster Management and Preparedness in North Lombok

One previously common thought about disaster aftermath was that people would turn to normal within a few months and rehabilitation and recovery will only be required to be short-term plans (Twigg, 2004, p 19;21). During the research period seven months after the earthquakes, there were few NGOs focusing on disaster risk reduction and participation. Most of the NGOs still present were mainly focusing on the immediate relief or were in the small beginnings of the recovery phase. It was pointed out by responders that as of the beginning of 2019, most relief was concerned with trauma healing for the residents of North Lombok and many were awaiting more proactive efforts such as disaster simulations, preparedness courses and disaster awareness information and funds to build more resistant houses.

In the case of North Lombok, it is also possible to link levels of preparedness to the aspect of fatalism. As Twigg (2004) reflects "People are fatalistic about disasters and do not take action to protect themselves against future events". A few days before leaving Bayan one NGO arranged for a disaster preparedness course in the village, directed at increasing disaster awareness, preparedness and resilience, it was found that funding for the attendees was necessary to ensure that people would show up as they did not want to sacrifice their daily

income and responsibilities to attend the course. On the other hand, a village meeting in Sukadana with regards to disaster preparedness was full of people and high levels of engagement from the crowd. This difference could be seen to be due to village meetings being a weekly occurrence and more engrained in the villagers' schedule, than a disaster preparedness course arranged by an NGO once in a while, and to perceptions of risk and priorities

Additionally, even if disaster management have improved both at national, provincial and local levels since the Indian Ocean Tsunami, there were still challenges in distributing information to the people living in the local communities in Lombok. Which was evident in disaster perceptions and was also pointed out by BNPB (2015) in that disaster and DRR information did not seem to reach the inhabitants of villages across the region. Another issue pointed out by IFRC (2016;2019) were issues surrounding the unclear roles of local and national DRR agencies. Which, in this instant, is inconsistent with Twigg (2004) statement that by transferring some of the responsibilities of DRR to local authorities may lead to a more open interaction between local and national state institutions.

According to Paul (2018) the disasters that occurred in Indonesia in 2018, including the one on Lombok, and how they were managed showed evidence of the Indonesian disaster management is still 'shaky' and should focus on improving their local institutions. However, the frequent occurrence of disasters in different regions of the archipelago might make it difficult for the central government to bounce back and fully prepare for the next disaster event, as disasters are seen as a threat to development efforts (Didier Cherpitel in Twigg, 2004). UNISDR (2015a) stated that for development to be sustainable, disaster risk reduction should be a priority at all levels. As such, the earthquakes experiences of Lombok residents and local governments should be considered as lessons learned and be integrated in further development of disaster management and risk reduction procedures.

8. Concluding Remarks

In this paper it has been established that Indonesia is one of the most disaster-prone countries in the world, being located in the Pacific Ring of Fire, with 40 % of the population living at risk of natural hazards (Gunawand & Mahul, 2011). In 2018, the earthquakes in Lombok and the earthquake and tsunami in Sulawesi, both in Indonesia, were recorded to be the deadliest and most damaging disasters. Additionally, this thesis recognises that disasters are not entirely

natural, but rather the product of the social conditions in a vulnerable community and how a hazard impacts upon a vulnerable population (Khan et.al., 2008; Twigg, 2004).

According to Singh et.al (2014) vulnerability cannot simply be seen in relation to people's past and present understandings of disasters, but their perceptions and knowledge need to be considered. Vulnerability, in this thesis, was defined as a lack of knowledge and resources, and local beliefs and customs as contributing factors. The PAR model was used to assess the particular vulnerabilities the North Lombok region. The PAR model, as suggested by Wisner et.al. (2003) present vulnerability as a result of root causes, dynamic pressures and unsafe conditions as social components and the hazard itself, the earthquakes, as a natural component. As such, North Lombok communities were not only vulnerable due to the seismic activity being most prominent in their area, but also due to economic and social factors, in addition to their level of disaster awareness.

In the case of North Lombok, the main social components of the region's vulnerability to the 2018 earthquakes were:

- Low levels of disaster and risk awareness;
- Cultural and traditional values and practices;
- Underlying gender roles and differences;
- Reliable local authorities;
- Urbanisation and modernisation;
- Inadequate building structures and materials;
- Vulnerable livelihoods and economies;
- The state and practices of national and local disaster management and risk reduction.

This thesis attempted to understand women's perception of what shaped their vulnerability to the earthquakes, and it was found that their views were related to their cultural, historical and social contexts. Until the earthquakes of August 2018, disaster and vulnerability were almost entirely new concepts for the people living in Tanjung and Bayan districts. Although the respondents in this study showed increased awareness and understandings of disasters and vulnerability at the time of the research, it became clear that this knowledge was only achieved after the earthquakes had occurred. It was argued that even with new experiences and knowledge, the underlying perceptions of disasters as acts of God and not something that can be prevented or reduced were still affecting people's risk and vulnerability perceptions.

What vulnerability is and what it means differs among communities, individuals and their own experiences and existing knowledge (Cutter, 1996). On that note, it was argued that the cultural and traditional values of the region were embedded in every aspect of the disaster and recovery process thus far. This included pre-earthquake social differences, how people were directly affected by the earthquakes, and in the aftermath.

Women has in general come to be seen as being one of the more vulnerable groups in the case of disaster vulnerability. In this study, it was argued that the social context had most impact on women's vulnerability in the aftermath of the earthquakes due to underlying differences regarding gender roles. Even where great strides to reduce gender differences were achieved, there were still some aspects of gender roles that were so embedded in their social structure, and are not considered to be changeable, or in the need of change. It was important to argue that gender difference is not synonymous with inequality (Fothergill, 1998), which in this particular case study, was proven to be the most common perspective. There should, however, be a focus on continuously improving gender relations, to reduce the gendered impacts of disasters, and increase the possibility of sustainable change.

The lack of a reliable local administrative structure and development plan in regard to disaster management was considered as a contributing factor to vulnerability in Bayan and Tanjung districts. The local administrations were expected to be able to respond to the earthquakes, due to increased national focus on disaster management, however, there was a general lack of resources for a proper local response. Implementation of disaster management efforts at the local level was seen as one of the more pressing challenges. Additionally, fund allocation for local disaster management agencies were seen to be insufficient, and have prompted local authorities to prioritise other, more prominent issues in their communities.

Even though there are both national and local building regulations in place, it was argued that especially local administrations face challenges regarding implementation due to financial and monitoring difficulties. The challenges of the local institutions were also seen as posing challenges in terms of the urbanisation seen in the regency. With the growth of cities and communities, consideration to implement building regulations and infrastructure should be a priority. The majority of the damage caused by the earthquakes was due to the poor construction of buildings that collapsed, which also caused the most deaths. As such, the importance of a strong foundation in local disaster management agencies is evident. A local institution that prioritise reconstruction of houses and buildings according to sustainable regulations.

To make livelihoods resilient should be a priority for local disaster management, safeguarding livelihoods and providing skills training can prevent people in vulnerable industries from falling into poverty in disaster aftermath. It was established that, in North Lombok, the challenge lied mainly in the tourism and fishing industries, which both were severely interrupted by the earthquakes.

The Indonesian Government has increased their focus on DRR after the 2004 Indian Ocean Tsunami, both at national, provincial and local levels. The issues of effective disaster preparedness and awareness spreading is, however, still evident in local communities on Lombok. The want and need to increase awareness among the people of North Lombok were divided, in theory there was evident interest in increasing knowledge, but when the opportunity to participate in trainings presented itself, people were less likely to actually engage. It was argued that these factors are exacerbated by the level of fatalistic beliefs among the residents of the North Lombok region. For the people in North Lombok, it is therefore essential that awareness about hazards, disasters and preparedness continues to be evolved and implemented as a part of the community development and structure.

Finally, an overall concern for reducing vulnerability for both the rural and the constantly modernising areas of North Lombok is to increase the levels of disaster awareness and preparedness. In particular through local DRR efforts and projects. It is therefore important for the national government to guide the local administrations in planning and facilitate for increased recognition of disaster preparedness and its importance for communities. In the context of risk reduction, it is also important to consider the special characteristics, skills and experiences of local people. These are factors that can be a source of both vulnerability and resilience and should be drawn upon to build on the current understanding of the situation in North Lombok.

8.1 Areas for further study

One of the limitations faced during this research was the lack of NGOs in the area at the time of the field work. The recovery process was in between immediate relief and reconstruction and – disaster management cycle. For that reason, it could be interesting to explore the further understandings and perspectives on vulnerability, gender in a post-disaster situation at a later stage of the recovery process.

As this research panned out it became clear that traditions, culture and the Sasak religion were major components in how the people of North Lombok understood their own situation and the occurrence of the earthquakes and hazard events in general. Although these aspects made important contributions to the study, it should be useful to give a greater focus to the unique attributes of the Sasak tribe to further understand the conditions of post-earthquake North Lombok and their recovery progress.

This research focused more on the actions and perspectives of the villagers and their daily lives than the role and function of government in facing a disaster. As such, it is necessary to look at the national and local governments understanding of and their role in disaster management, how have their focus shifted after the earthquakes and how will they try to prevent such impacts in the future. The fall of 2018 subjected Indonesia to a great many challenges in terms of natural hazards, and the trust in Indonesian disaster management was tested, as was seen when the government issued tsunami warnings before the Sunda Strait and Sulawesi tsunamis, but retracted them, leaving the people on the coasts vulnerable when the waves came in. Additionally, as seen in this research, the relief and rescue efforts in Lombok after the earthquakes were seen as insufficient in the crucial immediate aftermath. For that reason, research on the lessons learned and attitudes of Indonesian disaster management should be given greater attention in further studies of disaster research in the country.

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Appendices

Appendix 1: Interview guide used in interviews and FGDs

- How would you describe women's role, position and situation in your society? And are there any difference between men and women?
- Did you notice any changes in women's role and position in your society after the earthquakes? If so, in what ways did it change?
- Do you think the culture, traditions and beliefs in your community affect gender roles and your position in the society? If yes, how?

- What does the terms disasters and vulnerability mean to you?
- Where were you and your family members when the earthquakes occurred?
- How do you perceive your (and other women's) vulnerability in the aftermath of the earthquakes? Is it different than men's vulnerability?
- Were men and women differently impacted upon by the earthquakes?
- How do you perceive the causes and occurrence of disasters and earthquakes?
  - Do you think this perception has any effects on your vulnerability?
- How was the relationship between men and women in your community in the aftermath of the earthquakes?
- Do you feel like your position in society has changed post-earthquake?

- Were there/are there any organisations/NGOs in your area that provided participatory projects or activities after the earthquakes?
  If yes:
  - what kind of projects did the organisations offer to people in your community to participate in?
  - Were any of these projects especially for women? And how did they differ from projects aimed at men's participation?

- Do you think it is important for women to participate in disaster risk reduction activities and projects? If so, why?
- In your opinion, can female participation affect women's vulnerability to future disasters and the post-disaster situation?
  - And do you think female participation can have an impact on women's position in the society?
- In what ways can women contribute to disaster risk reduction and its effectiveness?
- Do you think gender roles, culture and beliefs in your society affect women's ability to participate in disaster risk reduction activities? If so, in what ways?

- In your opinion, are there a lot of offers for women to participate?
  - Would you like for women to be more or less included in disaster risk reduction activities?

- What do you think are key actions to reduce vulnerability to future disasters?
  -How can NGOs and their efforts to disaster risk reduction provide such efforts in your community?
- How do you perceive your own, and your community's preparedness for future events?
- What kind of projects did you participate in?
- What activities did the project(s) include for women?
- Did you find it easy to participate in disaster risk reduction efforts?
  - how did you find out about the projects?
  - did you meet any constraints in your community when wanting to participate?
- How do you perceive the project(s) you participated in?
  - did you find them helpful?
  - How did the providers of the project(s) engage women in your community?
  - In your opinion, did you feel like there was anything else the project(s) could have included or considered in terms of women in participation?

Appendix 2: Interview guide for institutions and organisations

- In your opinion, what constitutes a resilient community?
- In what ways does your organisation/institution prepare the community for the event of a disaster?

- What kind of gender sensitive services would you like to provide, but are not able to, concerning disaster management? Do you see any differences in the vulnerability of men and women in the occurrence of a disaster?
- Do you think it is important for women to be included in disaster management? If yes, in what ways?
- In wat ways are men and women similarly and differently included in disaster management at the community level?
- What does your organisation/institution do to include men and women equally in preparing for and building up after disasters?
- How does organisations perceive women and their participation in community-based disaster management projects?
- To what extent does organisations think of women's participation as important?
- Do you think that women's participation can reduce their vulnerability and improve their position in society?

- How does your organisation provide safe and equal rescue services to the people in this community in the aftermath of the August earthquakes?
- How do you perceive the services provided to the people in need in general? Are they sufficient to rebuild the community?
- Why do you think women are less represented in disaster management at all levels in Indonesia?
- Do you think women can bring new information and knowledge in the field of disaster management?