

The role of religious beliefs and practices in disaster:
The case study of 2009 earthquake in Padang City,
Indonesia

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**The role of religious beliefs and practices in disaster:
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Indonesia**

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ATTESTATION OF AUTHORSHIP

“I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the qualification of any other degree or diploma at a university or other institution of higher learning, except where due acknowledgement is made in the acknowledgements.”

Signed:  _____ Date: _____ 30/08/2016 _____

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Ethical approval for this study was granted by Auckland University of Technology Ethics Committee on March 10, 2016; approval number 16/49.

ABSTRACT

The number of disasters is increasing worldwide as the result of both the increase of hazards and people's vulnerability. Vulnerability relates to the conditions of society making a hazard likely to turn into a disaster; and relates to social, economic and historical characteristics. Religious beliefs and practices, as one of the social characteristics embedded in society, influence people's perceptions of risk and behaviours during disasters. Thus, religious beliefs and practices can be one factor of vulnerability to disasters. However, religious beliefs and practices also constitute a resource at individual and community level, potentially helping people bouncing back after disasters. To date, limited studies have investigated the role and significance of religious beliefs and practices in disasters. This current study attempts to fill this gap, using the 2009 earthquake in Padang City, Indonesia, as a case study. In 2009, a powerful earthquake struck Padang City, the capital city of West Sumatera province in Indonesia. The earthquake is considered one of the worst disasters to happen in Indonesia in the last 10 years. The recovery and reconstruction phases from the impact cost millions of dollars. Through this case study, this dissertation explores the effects of religious beliefs and practices towards disaster risk perceptions of the community in Padang city. It also examines the role of religious beliefs and practices in the way the community coped with disaster. The dissertation identifies the potential role of faith-based community in disaster risk reduction programmes. The present study relies on interviews conducted with two major religious community groups in Padang city, namely Muslims and Confucians. Data were collected from a total of eight participants, consisting of two religious leaders and two religious followers from each religion between April to May 2016. The study findings indicate that: 1) while religious beliefs can be a factor in people's vulnerability towards risks and disaster perception, religious beliefs and practices can be one of the

capacities that bind local communities together and contribute to successful coping with disasters; 2) with the discrepancies of relief distribution for two religious communities, religious communities can fill the gap that may exist from external intervention. Findings also indicate that religious beliefs and practices, combined with other mechanisms, should be integrated within disaster management and disaster risk reduction programmes as this would help build more resilient communities.

Keywords: capacity, community-based, disaster, religious beliefs and practices, vulnerability

CHAPTER 1: INTRODUCTION

1. 1. Introduction

Traditionally, disaster management policies and actions have tended to focus on the hazard component of disaster to both identify the causes of such an event and reduce the risk of occurrence in the future (Gaillard & Texier, 2010). Nowadays, it is recognised that vulnerability is a core aspect of disaster and reducing such people's vulnerability is essential. Vulnerability, which relates to physical, structural and social aspects, influences people's capacity to anticipate and cope with disasters (Wisner, Blaikie, Cannon, & Davis, 2004). Religious beliefs and practices are one of the social characteristics influencing vulnerability (Bush, Fountain, & Feener, 2015). For example, religious beliefs can create fatalistic attitudes, thus being one of the factors of vulnerability in the community. At the same time, religious beliefs and practices might play a certain role in shaping people's perceptions toward risks and disasters (Gaillard & Texier, 2010) and may constitute a significant coping mechanism (Ibrion et al., 2014) such as used in Japan after the 2011 disaster (Fujiwara, 2013). Yet, little research has been done on this topic and little consideration is given in disaster risk reduction and disaster risk management policies and actions (Gaillard, 2005). Therefore, this research explores the role of religious beliefs and practices in disaster using the 2009 West Sumatera earthquake in Padang City as the case study.

Section 1.2 provides a short overview of vulnerability and resilience in disaster, with a focus on religious beliefs and practices. The next section describes the objectives of this research. Then, in section 1.4, a background to the 2009 West Sumatera earthquake and Padang city are provided. The last section describes the outline of this dissertation.

1.2. Vulnerability and Resilience in Disaster

Disaster is defined as an event associated with the impact of a natural hazard, which may result in mortality, illness, and/or injury, destroys or disrupts livelihood, and requires external assistance for response and recovery (Cannon, 1994). Nowadays, people view the concept of disasters as the condition created from interactions of natural hazards and humans' activity. Vulnerability within society creates the condition for a hazard to become a disaster (Wisner et al., 2004).

Disasters show social constructions and interactions between hazards and vulnerable populations. The magnitude of a disaster is not determined by the physical intensity of the hazard but by the degree of vulnerability of people affected and their capacity to cope with the situation (San-Juan, 2013). Wisner et al. (2004) defined vulnerability as the characteristics and situations of a person or a group which influence their capacity to anticipate, cope, resist, and recover from the impact of a hazard. Vulnerability can be found in the form of physical vulnerability, structural or social vulnerability, as well as economic, psychological, demographic, and political vulnerability (Lindell, 2011). The concept of resilience, is the ability to bounce back and cope with the hazard and reduce the vulnerability that is embedded within it (Cutter, 2008). Understanding the concept of social vulnerability is needed to reduce the risk of disasters and help local communities better face disasters (Bergstrand, Mayer, Brumback & Zhang, 2014).

Social characteristics influence both vulnerability and resilience (Cutter, 2008). There is strong evidence regarding the role of social cohesion and network during and after a disaster (Aldrich & Meyer, 2014). The ability of a community to absorb, adapt, and transform in a disaster depends on the structure of social networks. The collective value of social networks and the drives from the social network to do things for each other is defined as social capital. Previous research found that social capital works in engaging

rescue activities, facilitating evacuation, acquiring information about disaster-relief policies, enhancing household-level disaster preparedness, and improving community-based disaster risk management (Guarnacci, 2016). One of the factors found linking the social network in and between some communities, thus potentially increasing resilience to disasters, is religion (Guarnacci, 2016).

1.2.1. Religious beliefs and practices as people's vulnerability and capacity

Religious beliefs have been used to interpret the meaning of uncontrollable and stressful events, such as disasters, for centuries (Grandjean, Rendu, MacNamee, & Scherer, 2008). The explanation of disaster viewed as acts of God, acts of men and women, and acts of nature, coexist in the same social context and time (Merli, 2010). In many societies because of weakness and limited knowledge to survive disasters, humans believe that disasters represent the power from mother earth or god(s) (Ghafory-Ashtiany, 2009). The reassurance that natural events are caused by another force, to give them rewards and punishment, provides humans an answer to make some sense in order to cope and regain some feeling of control (Douglas, 1999; Grandjean et al., 2008; Grimaldo & Molinelli, 2012). There are some downfalls with this conception. This view might lead to fatalistic attitudes, such as found in some communities in Morocco, which can be one of the factors in people's vulnerability (Paradise, 2005).

As one of the social characteristics that binds the community, religious beliefs and practices can create divisions in the community, rivalry between its members, and generate distance between a religious community and those who are not involved in religious practices within such community (Fountain, Bush, & Feener, 2015; Guarnacci, 2016). One example is in the Samoan community where low-income householders, who do not contribute to church obligation in disasters, can potentially become marginalised (Thornton, Kerlake, & Binns, 2010).

However, religious practices and institutions still have a big role in the life of many communities, especially within Asian societies. In Southeast Asia, Islam, Buddhism, Christianity, Hinduism, and Sikhism play some role in mobilising the society (Singh, 2011). Around 36.8% of South East Asians are Muslim, 26.8% are Buddhist, 22% Christian and 4.5% are Ethnoreligionist (The ARDA, 2016). Religious practices and institutions considerably influence the social, cultural, and political capital of local communities (Fountain et al., 2015). Religious practices are part of local people's culture, playing a key role in their daily life and in connecting members of society. As a result, religion might also play some role in the community's perceptions and attitudes toward risks and disasters (Gaillard & Texier, 2010). Previous studies have explored the role of religion in society, such as its role in financial hardship and psychological distress (Bradshaw & Ellison, 2010), in creating a sense of mattering (Schieman, Ellison, & Bierman, 2010), and in politics of development (Fountain et al., 2015). However, little research has been done on the role of religious beliefs, practices, and religious institutions, in coping with disaster. In considering the high number of religious people at a global level, this topic is very relevant and deserves to be explored.

1.3. Research Question and Objectives

This study aims to explore to what extent religious beliefs and practices may contribute to reducing local communities' vulnerability and increase their resilience to disaster. To address this research question, the present study focuses on three objectives:

- To explore how religious beliefs and practices shape local communities' perception of risk and disaster;
- To explore the role of religious beliefs and practices in coping with disaster;
- To identify policy implications for disaster risk management.

To address both the research question and these three objectives, this dissertation uses the 2009 earthquake in Padang City, Indonesia, as a case study. The 2009 earthquake was one of the worst disasters to happen in Indonesia in the last 10 years; with Padang city being the most populated area and one of the most affected by the earthquake. The city consists of multi-ethnic and multi-cultural populations with strong religious beliefs and practices with Minangkabau and Chinese as two of the dominant ethnicities, and Islam and Confucianism as the dominant religions (Alfidarus, 2014; Cohen, 2003; Columbijn, 1996). Indonesia is the largest Muslim country in the world with 79.1% of the population identified as Muslim (The ARDA, 2010).

1.4. Earthquakes in Indonesia

Indonesia, a country with a 252 million population, spread across 17,504 islands, is prone to earthquakes from the many volcanoes across the country and from the tectonic plates located below the islands (Kusumasari & Alam, 2012; Putra, Kiyono, Ono, & Parajuli, 2012). Geographically, Indonesia is located in South East Asia, between the Indian and Pacific Ocean. Geologically, Indonesia is located at a collision point of three active tectonic plates, including the Eurasian plate in the north, the Indian Ocean-Australian plate in the south and the Pacific plate in the east (Kusumasari & Alam, 2012). Indonesia is also located in the Pacific ring of fire volcanic arch lying along Sumatra, Java, Nusa Tenggara, and Sulawesi. There are more than 500 young volcanoes with 128 active ones (Gorshkow, 1970; Kusumasari & Alam, 2012).

The volcanic arc creates a seismically active belt along the arc. The tectonic activities generate tsunamis and volcanic eruptions. Some known active faults, acting as earthquake generators, are the Great Sumatra Fault, the Palu-Koro in Central Celebes, and the Sorong Fault in Papua. These faults cause major earthquakes that can strike the densely populated region (Kusumasari & Alam, 2012). The Sumatran Fault has an

oblique convergence that causes lateral displacement along the fault. This fault generates a very high annual rate of earthquakes, which occur in the shallow region causing large destructive earthquakes (Putra et al., 2012).

Earthquakes cause deaths and significant damage to public facilities in Indonesia (Putra et al., 2012). In 2014, the Indonesian Meteorological, Climatological and Geophysical Agency recorded more than 4,600 earthquakes in Indonesia, of which 739 earthquakes happened in Sumatra (Statistics Indonesia, 2015). Some of the big earthquakes to happen in Sumatra are the 2004 Indian Ocean earthquake in Aceh which created a tsunami (Huber et al., 2008), the 2007 Padang earthquake, the 2009 West Sumatra earthquake, and the 2010 Mentawai earthquake and tsunami (Putra et al., 2012).

1.4.1. The 2009 West Sumatra earthquake in Padang City

On 30 September 2009, West Sumatra province sustained a 7.6 magnitude earthquake. The earthquake was felt in Pariaman county, Agam county, Padang city, Bukit Tinggi county, Padang Panjang, Pasaman, Pasaman Barat, Batu Sangkar, Solok, Solok Selatan and Pesisir Selatan county (see Figure 1, p. 7). The biggest intensity, ranking scale VIII on the Modified Mercally Intensity (MMI) scale, was felt in Pariaman county, Agam county and Padang city. Based on the MMI scale, this means the earthquake had the potential to cause destruction of poorly built structures, considerable damage in ordinary buildings and slight damage in specially designed structures. Other areas in West Sumatra sustained a scale VI-VII MMI with considerable damage to poorly built structures and slight damage in good structures. The earthquake was felt as far as Singapore, Malaysia, Thailand, and Jakarta (Badan Penanggulangan Bencana Daerah, 2015). The source of the 2009 earthquake in Padang city is located in the ocean slab of the Indian-Australian plate (Putra et al., 2012).

US\$10 million to emergency relief. Over 200 national and international responding agencies arrived within four days after the earthquake to assist the government (UN Habitat, 2010). The Indonesian government allocated around US\$600 million for the relief and recovery phase after the 2009 earthquake, while the total funding from non-government organisations (NGOs) reached US\$38 million (UN Habitat, 2010).

1.4.2. Background information on Padang City

The case study used in this research focuses on the 2009 earthquake in Padang city. Padang city, the capital of West Sumatra province in Indonesia, is located on the west coast of the *Bukit Barisan* mountain range, which divides the land into highland and coastal area (Colombijn, 1996; Lammel et al., 2010). It is the third largest city in Sumatra and the centre of education and healthcare services in Central Sumatra area (Pemerintah Kota Padang, 2016).

Padang city is a multi-ethnic and multi-religious area. In 2013, Padang city had a population of 876,678 (Badan Pusat Statistik Kota Padang, 2013) spread over a 69,496 km² area (Bappeda Kota Padang, 2016). The main ethnicity in Padang city is Minangkabau people (Colombijn, 1996). The Minangkabau have practiced Islam for centuries (Cohen, 2003). The Chinese population are the biggest minority in Padang. Most of them hold their own Confucian traditions, even though they are Christian and Buddhist (Alfidarus, 2014). Other ethnicities in Padang are Javanese, Jambi, Batak, Arab, and Indian (Alfidarus, 2014).

1.5. Dissertation outline

Chapter One has briefly introduced the concept of vulnerability and resilience, outlining where religious belief and practices fit into these concepts. The objectives of this study

and the background of the case study have been explained to provide the rationale for this research. Chapter Two will critically review the academic literature pertaining to disaster vulnerability, capacity, and resilience – focusing on religious beliefs as one of the social factors whilst acknowledging the gaps in the literature. Chapter Three will explain the qualitative methods used in this study, outlining the epistemological and methodological stance, reflexivity, data collection, and analysis method. Chapter Four will present the findings of this study, in order to address the objectives set in this introduction chapter. Chapter Five will discuss the significance of the results in relation to the existing literature. Implications from this study and the related limitations will be provided, alongside recommendations for future research.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

This chapter examines a range of different literatures regarding Disaster Management (DM) and Disaster Risk Reduction (DRR) and religious beliefs systems. The objective is to critically analyse different approaches to the study of DM. The first section, 2.2, reviews the literature on the theory of vulnerability and religious beliefs and practices. Section 2.3 explains about people's capacity in overcoming disasters. In section 2.4., existing research on the influence of religious beliefs and practices in the disaster coping process and risk perception is identified. Section 2.5 reviews research on religious beliefs and, if, and how, these may affect individuals' and groups' understanding of disaster. The review particularly focuses on Islamic and Confucian views as the two religious beliefs explored in this study. The last part of this chapter reviews the literature on faith-based communities and explores the factors that may contribute to building resilience.

2.2. Defining Vulnerability

Currently, there is an increase in the frequency and severity of disasters from all hazards at a global level (Chester & Duncan, 2010). Disaster is an interaction between natural events and vulnerable humans (Chester & Duncan, 2010). However, although vulnerability is recognised as one of the root causes of disaster, DM practices are largely geared toward the natural phenomena. The practices focus more on hazard management, e.g. on technical measures such as engineering, rather than on development and social protection systems to tackle vulnerability (Wisner et al., 2004). Wisner et al. (2004) defined vulnerability as the characteristics and situations of a person or a group that influence the capacity to anticipate, cope, resist, and recover from the impact of a hazard. The authors argued that disaster is a compound function of the hazard and people, who own varying degrees of vulnerability and capacities to that specific hazard, and who

occupy the space and time during exposure to the event. Vulnerability is often caused by structural constraints that are exogenous to the community, such as distribution of wealth and resources within the society, market forces, political systems, and governance. It also results from inadequate means of protection, such as formal social protection and limited solidarity networks (Gaillard, 2010).

Lindell (2011) classified vulnerability into physical vulnerability and social vulnerability. Physical vulnerability refers to the physiological changes or damage to people (human vulnerability), other living beings and plants, or buildings (structural vulnerability); while social vulnerability is the potential condition that can cause changes in people's behaviour. Social vulnerability is determined by psychological, demographic, economic, or political factors (Lindell, 2011). Social vulnerability exists at individual-household level and at collective or community level. Some examples of social vulnerability at individual-household level are socioeconomic status, gender, race, ethnicity, and age. Social vulnerability in the community can be found in regional or national levels in the form of markets, institutions, social security, insurance, infrastructure, and income (Bergstrand, Mayer, Brumback, & Zang, 2015).

The Pressure and Release (PAR) model (Wisner et al., 2004) emphasised the significance of socioeconomic and political causes in disaster. The PAR model is used to show the intersection processes that generate vulnerability and natural hazard events (see Figure 2, p. 12). The forces from the process increase the pressure on the people; thus vulnerability needs to be reduced in order to relieve the pressure (Wisner et al., 2004). This theory refers to how social construct leads people to be fragile in the face of natural hazards (Gaillard, 2010).

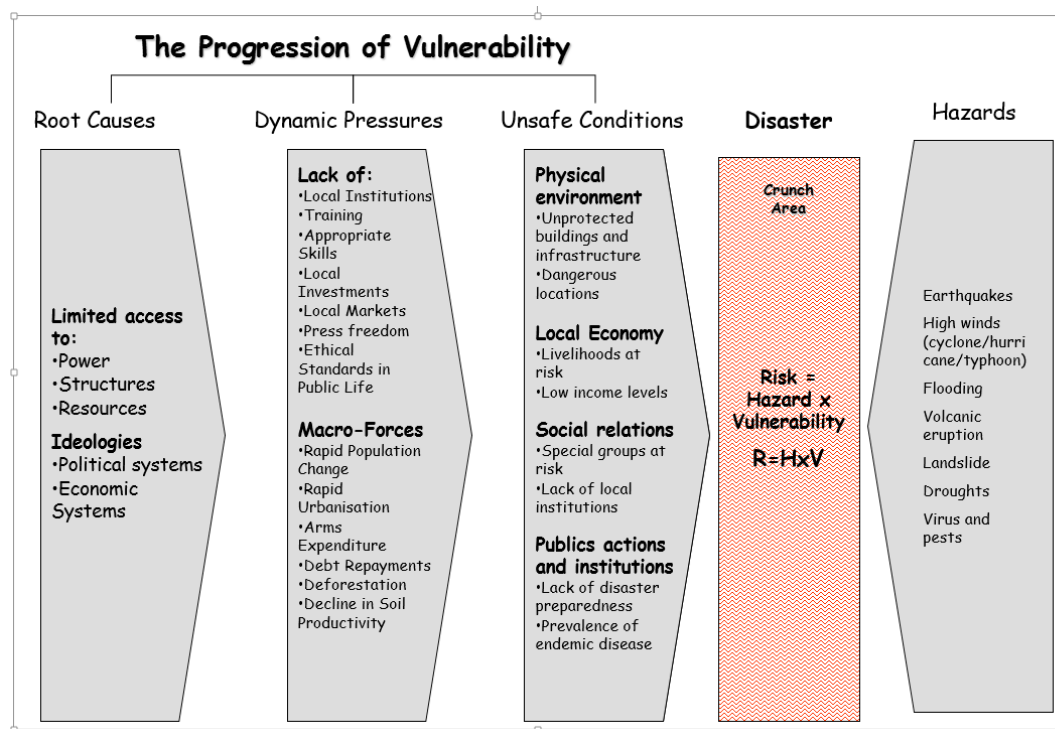


Figure 2: Pressure and release (PAR) model.

Source: Wisner, B., Blaikie, P., Cannon, T., & Davis, I. (2004)

This model (figure 2) shows the complexity of vulnerability and the need to reduce vulnerability in order to decrease the impact of a disaster. Vulnerability is influenced by local manifestation of larger scale processes, place and time context (Joakim & White, 2015). Gaillard (2010) stated that vulnerability depends on exogenous factors such as unequal distribution of wealth and market forces. Besides those factors, Duckers et al. (2015) found that physical hazards, cultural and historical factors also influence vulnerability. This is supported by a previous study, by Wisner et al. (2004), who found that vulnerability is determined by social status and characteristics, such as gender and sexual preference, marital status, age, occupation and caste, immigration status and national origin, race, ethnicity and religion, disability and health status.

Chester and Duncan (2010) found that the approach in DM still focuses on the physical processes more than on the social gaps, even though people acknowledge other social factors such as differences in systems of beliefs, material wealth, previous experience in

hazardous events and psychological factors may be important in affecting human response during disaster. Another approach in DM focuses on where most losses could be explained by poverty, deprivation, and lack of disaster preparedness. It stresses the uniqueness of place, the demography, society, and culture (Chester & Duncan, 2010).

2.3. People's Capacities

Although individuals, households, and local communities can be highly vulnerable to disaster, they also own resources or capacities that are often central in their efforts to overcome disasters. Gaillard (2010) explained capacity as the availability and the manner in which people and organisations use resources and assets to resist, cope with, and recover from a disaster. Capacities are often rooted in people's endogenous resources and include traditional knowledge, indigenous skills and technology, and solidarity networks. Recent studies show that giving more emphasis on people's capacities for self-protection and group action can be used to reduce vulnerability before, during, and after a disaster (Wisner et al., 2004).

Capacity can be found in the form of human, social, political, economic, natural, and physical resources (Quevauviller, 2014). Individual and community social networks often provide key resources to deal with disaster situations (Aldrich & Meyer, 2014). Social networks and ties constitute social capital. Social capital is generated through time either from the authority or from religions and culture that are transmitted from one generation to the next. It is also generated from shared historical experiences (Fukuyama, 2001). Aldrich and Meyer (2014) differentiated bonding social capital and bridging social capital. Bonding social capital connects similar individuals across demographic characteristics, attitudes, and available information and resources. Social capital can provide social support and personal assistance during and after disaster, such as after the 2004 tsunami in Aceh (Guarnacci, 2016). Bridging social capital loosely connects the

ties between individuals with more demographic diversity (span to other social groups) and provides resources and information to assist individuals in the society (Aldrich & Meyer, 2014). Social capital network also works in linking citizens with governments (Aldrich & Meyer, 2014).

Cultural traditions, beliefs and practices have been identified as significant resources in a disaster. Termed as cultural capital, such resources are often important to deal with vulnerabilities and strengthen the livelihood assets of communities (Daskon, 2010). The cultural elements such as norms, beliefs, values, knowledge, technology, and legends serve as a template for the community's behaviour before, during, and after the impact of a disaster (Wenger & Weller, 1973). A study by Daskon (2010) showed how cultural traditions in rural Kandyan communities in Sri Lanka helped the community in facing changes in Sri Lankan political and economic changes.

Religious beliefs embedded in local cultural concepts are one of the important components shaping believers' attitudes, perceptions and practices related to environment. Douglas (2003) explained that patterns of social organisations and religious views, and a variety of social attitudes toward body, God, and sin, are correlated to the degree of ritualisation and symbolisation in society. It works as a reinforcement of grid-like structure (individual roles and position in society) and group-like antistructure (the strength of people's association in the community). Threats from God and the environment work to support social orders by acting as the normative principle, inducing people to behave and cooperate (Douglas, 1999). Religious beliefs also affect the way people perceive risk and cope with disaster (Gaillard & Texier, 2010). For example, Schmuck (2000) showed how religious conception affects the way Bangladesh community sees and copes with disasters.

2.4. Religious Beliefs as Coping Mechanisms

Weber (1963) theorised that beliefs give the reassurance that suffering happens for the greater good. Previous research has shown that religion can be used as a significant positive coping mechanism, especially for people who have less power and position in society (Bradshaw & Ellison, 2010; Schieman, 2010; Schieman, Ellison, & Bierman, 2010). Schieman et al. (2010) found that there is an indirect effect of religious attendance on mattering through divine control beliefs and the frequency of social contact in older people. It may give them empowerment, meaning, purpose and self-esteem. Bradshaw and Ellison (2010) showed that religion might mitigate the harmful effects of socioeconomic deprivation on mental health by providing guidance, solace, a sense of power, intrinsic self-worth, optimism, and hope.

People's coping strategies, or the manner in which people use existing resources, in time of crisis, reflect the way their capacities are mobilised. Religious beliefs and practices constitute one of the capacities from people and local communities. They are a part of their day-to-day culture and social practices. In their study on the Fijian community, Gillard and Paton (1999) found that activities, such as regular attendance at religious meetings, regular public display of faith, frequent visitation from religious officials for prayers and donations, duties at places of worships, informal schooling for children, weddings and funerals are all part of the cultural life that can influence post-disaster experiences and traumatic reactivity. This is in accordance with the study by Chester et al. (2008) who found that culturally-aware responses with the perception and knowledge of the role of religion may be needed. One of the examples of the use of religion in risk and disaster perception is Japan, which used the religious idea that disasters are heavenly fate, to help society bounce back and feel more empowered after the 2011 earthquake (Fujiwara, 2013).

Ibrion et al. (2014) found that beliefs, along with cultural traditions, influence the coping mechanism and resilience of disaster survivors. Research by von Vacano, Schwarz, Zaumseil, Sullivan, and Prawitasari Hadiyono (2014) showed that implying divine purposes, as the cause of disaster, fosters positive re-evaluations of the event and encourage benefit findings in life conduct, social and material dimension. This is supported by Stratta et al. (2014), Fujiwara (2013), and Piggins (1981) who identified that a set of belief systems protect individuals from the development of suicidality in the face of stressors, provides explanations of why disasters happen, and a feeling of control and safety. In contrast, San-Juan (2013) argued that even though God can constitute an effective coping strategy, God can also be the excuse for giving up. This fatalistic attitude was found in the Moroccan community after the 1960 earthquake (Paradise, 2005), especially among the less educated people, and in Mount Kembala, Australia after the mine explosion (Piggin, 1981). Despite existing research documenting the importance of religious belief in people's efforts to cope with disaster, such a mechanism is hardly considered by actors and policy makers dealing with DM.

2.5. Disaster Meaning in Religious Beliefs and Implications for Vulnerability and Capacity

For centuries, religious beliefs have been used in various traditions and places to address the question of innocent suffering from natural and human-made disasters (Chester, 2005; Gaillard & Texier, 2010; Merli, 2010). How human minds appraise a disaster is explained by Grandjean et al. (2008), in that since childhood, the human mind assigns meaning to day to day information. It appraises the cause of the situation and the effect of its reaction before it reacts based on its perception of justice. A natural-hazards related disaster triggers a large number of appraisals at once, creating representation of the event and its consequences. Information is processed unconsciously which generates rapid reaction at cerebral level. The information is then processed at higher levels of the cognitive system

in the brain, involving associative networks of the temporal neocortex and anterior regions. These appraisals give meaning to the situation (Grandjean et al., 2008).

Different researchers have focused on the meaning that people give to disasters. Piggin (1981) found that people raised religious questions to give meanings after the Mount Kembla mine disaster. They constructed the meaning of the disaster by relating it with the way they understood themselves – in that good humans deserve protection and the sinful deserve retribution. The research from Fujiwara (2013) analysed how theodicy functioned in Japanese society after the 2013 disaster. It showed how Japan, a country in which religion does not play a big role in disasters, and does not in everyday life, attributed the tsunami to God, turning to nativism and theodicy after the 2013 earthquake. Affected people saw the earthquake as collective punishment from nature who are divine beings for Japanese people and Japanese leaders. Other Japanese perceived it as a result of human activity (Fujiwara, 2013).

Gaillard and Texier (2010) found that a conception of disaster as divine retribution is related to low perception of risk in religious values that do not favour a social participation process. This finding is in accordance with research done in 1981 by Piggin who also found that this conception is related to submissive and fatalistic attitudes toward risks and disasters. It is further supported by Paradise (2005) who studied the risk perception among Moroccan Moslem populations after the earthquake in 1960. He found that the perception of disasters as divine retribution related with the fatalistic attitude toward risk perceptions and predictions among the less-educated participants, which lead to more vulnerability.

In contrast, Joakim and White (2015) argued that even though religious beliefs have potential to increase vulnerability, they also create awareness of the possibility that

disaster, as an act of God or the power of nature, can happen anytime. This awareness is a potential form of resilience. This is supported by the findings from Adiyoso and Kanagae (2013) in Aceh, indicating that even though people believed that disaster is an act of God, such a view does not create fatalistic attitudes toward disasters as Achenese still believed that they needed to do their best in the preparedness for the next disaster (Adiyoso & Kanagae, 2013).

2.5.1. Islamic view of disaster

Disasters linked to hazards, such as earthquakes, are related as the mark of the end of the world for Islamic people (Ghafory-Ashtiany, 2009). Ghafory-Ashtiany (2009), in his writing on Islamic view of disaster, described this misconception of Islamic views on disaster which leads to fatalism. However, referring to God as the cause of disaster is not a reflection of fatalism but a convenient way for the authorities to use it as a scapegoat to evade responsibility in the construction of the vulnerability (Gaillard & Texier, 2010).

Adiyoso and Kanagae (2013) found Quran verses that guide humans through the concept of disaster such as earthquake (Al-A'raf:91, Al-Ankabut:37), flooding (Al-Ankabut:14, Saba':6) typhoon (Al-Haaqqah:6) and drought (Al-A'raf:30). Analysis of the verses about earthquakes from the Holy Quran, as the principle source of religious thought in Islam, shows that they give guidance about the concept of tectonic plates. The concept that good deeds to the environment will be rewarded and bad deeds will be punished by disaster can be found in the Quran. The sudden occurrence of disasters and the necessity of good deeds and avoiding mistakes relate to the concept of risk reduction (Ghafory-Ashtiany, 2009).

The view of disaster as collective punishment was found in the Islamic population in Satun, Thailand after the 2004 tsunami (Merli, 2010). It was reported that even though Islam sees disaster as a personal retribution, some Islamic leaders in Satun still see

disaster as an impersonal fate and retribution to clean moral pollutions in the area. The view was shared by religious leaders outside the area affected by the 2004 tsunami (Merli, 2010). The same view was held by some people in Morocco (Paradise, 2005) and by some leaders about the 2004 tsunami in Aceh, Indonesia that was considered as God's punishment for Aceh people (Adiyoso & Kanagae, 2013). Paradise (2005) explained that people in Morocco perceive disasters, especially earthquakes, as divine action and retribution. Furthermore, Adiyoso and Kanagae (2013) investigated the way Aceh people relate religion and natural disaster in school and community. Religious discourse about disaster can be found in schools and in the community. Mostly, the contents are related to tsunami as God's trials and warning, and about the importance of prayers. However, Adiyoso and Kanagae's study only focused on Islam as the main religion in Aceh and did not explore how the other minorities in Aceh perceived tsunami and disaster. The study used interview as method in schools and only used media to analyse the community perception.

2.5.2. Confucian view of disaster

Research indicates that in Confucian tradition disasters are considered as heaven mandate (Schneider & Hwang, 2014). Confucianism comes from Chinese teachings that require humans to be benevolent (Hai-Long, 2015). Research by Schneider and Hwang (2014) showed how a Confucian code of conduct may influence the meaning of disaster and disaster culture in Chinese society. Disasters are seen not only as heavenly ways to challenge the existing condition but also as political opportunities to create cultural control to manage the society. However, this research did not study the influences of other beliefs (e.g. Buddhist) that are also the foundation of Chinese society. This research also focused more on the influence of the meaning of disasters in governing the society and did not elaborate on how this, in turn, can be used to manage society as part of the DM programme.

Research on Confucian views of disaster in Korea showed that the religion and philosophy of Confucian relates to fatalism (Ha, 2015). Confucianism sees disasters as destiny that is predetermined before birth and cannot be changed. Thus, disasters are a divine will. However, Confucians also believe that education is important to improve their life. The importance of education urges Confucians to keep learning to become better. This concept is applicable in mitigation and preparedness process and shows the importance of a Confucianism view for both disaster recovery and disaster mitigation and preparedness (Ha, 2015).

Confucian thought largely influences the collectivism thought in Korean, Chinese, and Japanese society (Lee & Nah, 2011). Research by Lee and Nah (2011) showed that for East Asian people, a Confucianism view gives the meaning of disaster as those who deviate are criticised and those who follow will successfully survive. It implicates the need to interpret and apply Confucianism norms to various numerous moral and social problems.

In both Islam and Confucianism, disaster is related to fatalism due to the conception of disaster coming from the will of divine being(s). However, there is a difference in those views. An Islamic view of disaster implies that disaster is a natural occurrence that happens as a warning and punishment for bad deeds and rewards for good deeds; while Confucianism sees disaster as a destiny written before birth. However, both Islamic and Confucianism views stress doing good deeds and learning to improve the quality of humans' life. This concept is an important value in the DRR process.

2.6. Faith-based Community in Building Community Resilience

Academics, practitioners and policy makers emphasise that actions geared towards DRR and DM need to be comprehensive (Ghafory-Ashtiany, 2009). DRR and DM are long term-actions involving consistency of actions and collaboration among agencies that all

require expert leadership and good governance on the one hand. On the other hand, different authors also acknowledge that communication and knowledge dissemination, linked to DRR and DM, should be compatible with the beliefs and culture of local communities. For example, research by Gomez-Baggethun (2012) showed that traditional knowledge and shared beliefs can facilitate collective responses to crises and contribute to the maintenance of resilience. DRR and DM projects built on local knowledge and beliefs may work in creating resilience in the community.

Community-based DRR and DM emphasises the need to empower local communities by using self-developed and culturally, socially, and economically acceptable ways of coping and avoiding crises (Gaillard, 2005). This concept fosters community participation in the evaluation and reduction of risk, including hazards, vulnerability, capacities, and resilience (Gaillard, 2010). San-Juan (2013) elaborated that DRR and DM programmes need to involve the recognition of interpretation of disasters from the affected community's culture. Furthermore, Dakson (2010) argued that cultural capital can be used as a cohesive framework for social inclusion, equality, and social security to empower local communities and decrease their vulnerability.

Strong social networks can be used by a community to absorb the negative impacts of a disaster (Guarnacci, 2016). That is why a community-based approach needs to focus on the social networks in the community. However, local communities are not uniform entities but consist of different ethnicities, religions, and genders. Heterogeneity and big size groups can affect the degree of divergence in interests, beliefs, and values; thus can be an obstacle in creating a strong sense of community (Guarnacci, 2016). Hence, faith-based organisations work as one of the community groups that are reached during and after disasters (Fountain et al., 2015; Gaillard, 2005; Guarnacci, 2016; Wisner, 2010). Faith based organisations can help to spread information about disaster planning, policy

making, and training to the community (Furman, Benson, Moss, Danbolt, Vetvik, & Canda, 2016). Different authors further emphasised that they also connect the community with the government and with other religious and non-religious NGOs (Guarnacci, 2016).

Chester, Duncan, and Dibben (2008) argued that an effective disaster relief and reduction programme also needs to recognise and integrate the leadership role of religious leaders and religious institutions. Religious leaders can be an important source of information about people and places in need. They also provide community and spiritual support, and leadership in the form of aid, prayer and solace for people who were affected by disaster (Chester, 2005). Buddhist leaders in Japan used their teaching about *Mujo* or impermanence to empower their community after the 2011 earthquake (Fujiwara, 2013). After the 2004 tsunami in Satun, Thailand, the monks focused their work on giving people hope and courage (Merli, 2010).

A study by Adiyoso and Kanagae (2013) into the role of Islamic teaching in DRR and DM after the 2004 tsunami in Aceh recommended a development of risk communication intervention involving Islamic teaching to educate people's preparedness using the Holy Quran versus related to the natural disaster. The authors stressed the importance of religious leaders in shaping public attitude toward natural-hazards related disaster. However, the study only looked at the integrative religious message in communication media and did not consider the benefit in involving religious community, especially religious leaders, in inserting risk communication messages into the religious teaching.

On the other hand, it is important to note that the involvement of religious actors and organisations in disaster-related programmes can have limitations. After assessing some case studies, Fountain et al. (2015) found that although religious actors can provide a culturally appropriate disaster relief process, and have a significant role in the community,

the nature of this role is complex. The action in disaster response can be used for religious and political agendas by the organisation to spread their religion to the affected community. Furthermore, a study by Le De, Gaillard and Friesen (2014), done in Samoa after cyclone Evan hit the country, showed that while the church contributed to the emotional, social, and material wellbeing of those affected, it could also exert a pressure on those most vulnerable.

2.7. Summary

Religious beliefs are central within the worldview of many people affected by disasters. It is one of the factors of vulnerability as it affects people's perceptions toward risks and disasters and can be the reason for a fatalistic attitude. However, religious beliefs also help people understand the meaning of a disaster, cope with it, and foster resilience at a community level. A review of the existing literature suggests that religious beliefs and practices, as well as religious organisations, may play a significant role at community level in both the relief and reconstruction phases following disaster. Despite these evidences, there is little research done on this topic and limited consideration on these aspects is given from disaster actors and policy makers in their DRR and DM programmes. The next section will explore the data collection and analysis method used in this study.

CHAPTER 3: RESEARCH METHOD

3.1. Introduction

This chapter outlines the methodology and method used in the study. It adopted a qualitative research approach using constructivism paradigm, which is considered relevant as the aim of the study is to deeply understand the shared meaning of religious beliefs and practices in disasters, and in creating vulnerability and capacity. Section 3.2. describes the methodology and epistemology used in this study. Next, the study design, sampling method, and data collection and analysis are explained in sections 3.3., 3.4., and 3.5 respectively. Reflexivity is done throughout the research to improve the rigour and trustworthiness of this study. This chapter also explains the methodological limitations of this research. It further acknowledges how this research maintained ethical principles.

3.2. Methodology and Epistemology

This research is a qualitative study using a constructionist paradigm. Qualitative research is used because this study tries to uncover an in-depth understanding of the social world of the participants by considering their circumstances, experiences, and perspectives. This fits with the view of constructionism. In constructionism, there is no true interpretation because diverse understandings can be formed from the same phenomenon (Crotty, 1998). Social reality is a function of shared meaning that is constructed and reproduced through a social life (Greenwood, 1994).

This research aims to understand how participants constructed their individual and shared meanings around the phenomenon of interest – the 2009 earthquake in Padang. Constructionism views all knowledge and all meaningful reality as being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context (Crotty, 1998). For the constructionist, meaning is not discovered but constructed as humans engage with the world they are

interpreting; and, therefore, people construct realities in which they participate (Crotty, 1998; Lauckner, Paterson, & Krupa, 2012). One of the advantages of this approach is the close collaboration between the researcher and the participant, which enables participants to tell their stories and views of reality; thus enabling the researcher to better understand the participants' actions (Baxter & Jack, 2008).

The focus of this research has been defined from the research questions and theories gathered in the literature review. The focus is the social process of how people's beliefs affected their behaviour during and after the 2009 earthquake in Padang City.

3.3. Study Design

The locations selected for research are usually chosen because of their salience to the research (Ritchie, Lewis, Nicholls, & Ormston, 2014). A decision was made to carry out the research in Padang City, West Sumatra Province, Indonesia. The location was chosen because Padang City is one of the areas that had the worst damage from the 2009 earthquake (McCloskey et al., 2012). Padang city also consists of multicultural and multireligious populations. The majority of the ethnicity in Padang City is Minangkabau and the majority of the minorities is Chinese. Other ethnicities that can be found in Padang City are Jambi, Batak, Arabic, and Indians (Shannon, Hope, McCloskey, Crowley, & Chrichton, 2014). The majority of Padang City residents are Muslim and Confucianist (Alfidarus, 2014).

Qualitative research usually uses non-probability methods where units are deliberately selected to reflect particular features of the sampled population (Ritchie et al., 2014). Purposive sampling is sampling selection based on particular features or characteristics of the participants to enable detailed exploration and understanding of the central themes and questions of the study. It aims to ensure that all key constituencies of relevance to subject matter are covered and to ensure that the characteristics concerned in this research

can be explored (Ritchie et al., 2014). A small sample size is common in qualitative research because this research does not look for prevalence or incidence. Instead, the type of information gathered is rich in detail; hence, it is important to keep the sample size reasonable for data analysis and ensure there is a point where the data is saturated (Ritchie et al., 2014). Guest, Bunce, and Johnson (2006) stated that saturation might occur within the first 12 interviews and can be present as early as in six interviews in a homogenous community.

This research used purposive or criterion-based sampling to select the participants and recruited eight participants in total from the initial target of 12 participants. The sample size was deemed sufficient to address the study aim because after eight interviews, data saturation was reached. Selected participants fit the criteria made prior to the interview.

3.3.1. Selection criteria

Defining the sample design involves two stages. The first stage is identifying the subpopulation and the central interest of the study by specifying the characteristics of the collective units required (Ritchie et al., 2014). Prior to data collection, the study population in this research was identified as people who live in Padang City. The criteria were used to build the inclusion and exclusion criteria for this research.

The criteria used in this research were based on the principal aim of the study and existing knowledge and theories. Given that the substantive focus of the research was the influence of religious beliefs and practices on people's vulnerability in the 2009 earthquake, the inclusion of experiencing the disaster and people's religious beliefs and practices were important. Therefore, the primary criteria for participants were experiencing the 2009 Padang earthquake and holding religious beliefs. In term of religion, the decision was made to include both Islam and Confucianism. The perspectives from the leaders and followers were sought to know the existing programme

and to compare views across participants. Because of the interest in the specific area affected by the earthquake, a second decision concerning the location where the participants lived was also important. A decision was taken to restrict the study population to adults, defined in Indonesia's law (The Law on Citizenship 2006; The Law on Workforce, 2003; The Law on Human Right, 1999) as 18 years old or above. To summarise, the criteria considered for the current study is as follows:

- Experiencing the 2009 Padang earthquake
- Religious leaders and religious followers holding religious beliefs (Islam and Confucianism)
- Participants must live in Padang city for 10 years and must be present during the 2009 earthquake
- Participants had to be at least 18 years and older
- Participants can be female or male

No exclusion criteria were implemented.

3.3.2. Recruitment

Different methods can be used to generate awareness and encourage participation in the research, such as letters, information leaflets, posters, advertisements in newsletters, emails, and messages on online forum or social media (Ritchie et al., 2003). The recruitment for this research was done by using promotional materials including posters (see Appendix A) and brochures (see Appendix B). The materials presented the information in a way that was easy to understand, provided all the necessary information about the research, and were translated to *Bahasa Indonesia* or Indonesian language.

Utilising these methods, the study recruited two religious leaders and two religious followers from each religion, resulting in a sample of eight people in total. The participants for this research were recruited through organisations (one mosque and one temple). These places were chosen because they provide services to the population of Padang City and represent particular populations. The religious leaders were approached

to ask for their approval and/or participation and permission to distribute the recruitment material in places of worship. They were also asked for help in finding the followers. A summary of participants can be found in Table 1.

Potential participants interested in this research were encouraged to contact the researcher. They were then given an information sheet (see Appendix C) approved by the Auckland University of Technology Ethic Committee (AUTEC) regarding the research and had three days to decide whether or not to participate. The information sheet included the aims of the research, as well as the methodology and procedures, the benefits of this research and confidentiality – all of which were given to the participants again prior to the interview to help them make an informed and voluntary consent.

Table 2: Summary of participants

Participant	Experienced the 2009 earthquake	Religious leader/follower	Religion	Live in Padang City	Age >18	Gender
Participant 1	Yes	Leader	Islam	Yes	Yes	Male
Participant 2	Yes	Follower	Islam	Yes	Yes	Male
Participant 3	Yes	Leader	Confucian	Yes	Yes	Male
Participant 4	Yes	Follower	Confucian	Yes	Yes	Female
Participant 5	Yes	Leader	Confucian	Yes	Yes	Female
Participant 6	Yes	Leader	Islam	Yes	Yes	Male
Participant 7	Yes	Follower	Islam	Yes	Yes	Female
Participant 8	Yes	Follower	Confucian	Yes	Yes	Male

3.4. Data Collection

To ensure the fulfilment of the aims of the research, formulating the right questions is important. In developing the questions, consideration was given to avoiding potential embarrassment, leading questions that steer response to a particular answer, and sensitive questions. Data from this research were gathered using an interview consisting of open-ended questions. These questions were developed from previous research by Herring

(2012). A trial was conducted with one of the religious leaders in the area to test the responses to the questions. The discussion led to modifications to refine the questions specifically focusing on the 2009 earthquake. These activities generated 10 interview questions and helped in having good research ethics by making sure that all of the questions fit with the culture and the conditions of the community (see Appendix D).

A good location was one of the first decisions that needed to be made before holding an interview. A good location is characterised by access, quiet space without a lot of distractions, actual and perceived safety, adequate privacy, comfort and availability of electricity if required (Tracy, 2013). The interviews for this research were done in the religious organisation's office inside the temple and the mosque, and some shops near the places of worship as per people's decision. The places were quiet and comfortable public spaces with adequate privacy.

The participants were interviewed following the developed questions using a semi-structured interview. Interviews were done in two to four sessions, with one hour long in each session. The participants' responses were transcribed verbatim during the interviews. The researcher and the participants used the local language, Indonesian, thus there were no difficulties in communicating. People's answers were directly written on the question form. During the interview process, some of the co-workers and family members, with permission from the participants, joined the discussion and backed up the statements from the participants. After the interview ended, participants were asked to read their answers to ensure that there was no misinterpretation of their answers from the notes taken by the researcher. The sensitivity of this topic, such as for the participants who lost their family members or acquaintances, was dealt with by not pushing the participants to tell their story, letting them tell their own story, and discontinuing the topic which appeared to make them uncomfortable.

3.5. Data Analysis

Before starting the analysis, the data were translated from Indonesian language to English. Data were read repeatedly during and after the data collection time until the researcher was familiar with the data. Data analysis in this study was done using a qualitative descriptive approach, in particular, qualitative content analysis. Qualitative descriptive aims to describe the phenomena desired and give a comprehensive summary of an event in everyday terms (Sandelowski, 2000). It is used to make sense of a phenomenon and understand it, after describing it from the other's perspective (Magilvy & Thomas, 2009). Sandelowski (2000) stated that an accurate accounting of events will give an accurate description of the meanings of the events for the participants. Thus, this approach is appropriate to get a rich and straight description from people's experience of the 2009 earthquake in Padang.

A modifiable coding system that corresponded to the data collected was used for the analysis (Neergaard, Olesen, Anderson, & Sondergaard, 2009). The data analysis in this study followed the six analytic strategies in qualitative descriptive by Neergaard et al. (2009):

1. The data from notes and interviews were coded. The code was derived from the repeated word or phrases found within and across the text.
2. The researcher sorted through the data to identify similar phrases, patterns, themes, sequences, and important features for coding.
3. Similarities and differences among the data were searched for further analysis.
4. Groups or generalisations from the data were made.
5. Finally, these generalisations were compared to the existing knowledge in Chapter Two.
6. While doing the analysis, reflections and insights on the data were recorded in the researcher's notes as part of the reflection in the study.

Sandelowski (2000) described the arrangement of the summary from data analysis by categories including: a) actual or reverse chronological order of events; b) most prevalent to least prevalent themes; c) progressive focusing from broader context to particular cases or from particular cases to broader context; d) a day-, week-, month-, or year in the life of a person; e) the Rashomon effect (describing an event from more than one participant's perspective).

3.5.1. Reflexivity

Reflexivity is an awareness of the researcher's influence on the people or topic being studied while simultaneously recognising the effect of the research experience on the researcher to promote an ongoing relationship between the researcher's subjective responses and the intersubjective dynamics of the research process (Probst, 2015). Reflexivity aims to promote rigour and credibility of the findings in qualitative research. Through reflexivity, researchers can reflect on their thoughts, assumptions, and expectations, to become more aware of their influence on the process and provide rationale for their decisions in the research process. It is done by reflecting upon the cultural background, actions, emotions, and assumptions, which influence the research process and findings (Darawsheh, 2014).

Reflexivity helped the researcher to ensure her position in this research, the rationale for the method used, and how the researcher could take advantage of her subjectivity in this study. The researcher is an Indonesian and comes from the area where this study was conducted, She has Minangkabau and Chinese ethnicity as her background. It was inevitable that the researcher's perspective, and background as a person who was raised with the touch of Minangkabau culture and holding Islamic beliefs, would subjectively influence the research findings. The researcher realised that this background as a Muslim could introduce a bias in the analysis of the data, such as by emphasising more to the

Muslim community than to the Confucian community. The researcher dealt with this by being aware of this bias and by studying more about the Confucian community.

Doing research with the members of the community which one has similarity with has both advantages and disadvantages, as it can build shared understandings that make the participants less guarded; but also creates assumptions (Probst, 2015). The researcher related her knowledge about Islam, her cultural background, and her experience as a general practitioner in the aftermath of disaster with participants. However, even raised with the touch of their culture, as a person who grew up outside the community, the researcher acknowledged her limitation in understanding their way of life, their values, and the knowledge of Padang people. The researcher was also aware of her knowledge of the way Indonesian Muslims live their life and their values, as she is one of them. However, before doing this research, the researcher admitted that she had limited knowledge regarding Confucianism values. The researcher found that her limited knowledge of Confucianism belief was not an obstacle as participants were very willing to share their knowledge with her as an outsider. Indeed, it turned out that her limitation became the bridge to build the trust with the Confucian participants.

Reflexivity also results in changes and alteration in the data collection process in order to collect in-depth data and interpretations from participants' account (Darawshesh, 2014). Reflexivity enabled the researcher to understand the cues that the participants gave her during the interviews and use it to improve the data collection process afterwards. For example, a willing-participant in an interview showed reluctance to read the complete information sheet because of the length of information given. The researcher reflected to herself why the participant had acted that way. It could be that the information written was too long or the font was too small. As a result, in the interviews following, the researcher printed the information sheet with a bigger font and encouraged them to ask

questions about the study and the information provided. It built a level of trust that helped her to collect relevant data.

3.6. Research Ethics

Research ethics aims to avoid harm by protecting the rights of participants for autonomy, confidentiality, and privacy, while maintaining the research process (Orb, Eisenhauer, & Wynaden, 2000). Application of appropriate ethics aims to protect both the participants and the researcher (Orb et al., 2000). Hence, prior to the study, ethical approval was sought by submitting the application to the AUTECH. A formal letter was sent to the Indonesian Ambassador in New Zealand, local government administrative office in Padang City and leaders of *nagari or koto* (village or neighbourhood) for permission to conduct the research.

As mentioned above, information sheets and consent forms were given to the participants prior to interview. All participants had up to three days to decide whether they wanted to participate in this research. The information in the information sheet was repeated before the participant completed the questionnaire. Confidentiality and privacy are important in all forms of research, especially in disaster research where the participants might be in a vulnerable state (Ferreira, et al, 2015). Confidentiality in this research was maintained through substituting all names, and other identification needed in the publication of this research, with pseudonyms. No contact details, data, or other information were given to a third party. All of the data collected can only be accessed by the researcher and the supervisors. Research records will be kept for six years after publication of the work to allow examination in accordance with AUTECH (2015) protocol. Notes and other hard copies were kept in a locked filing cabinet. Computer files were password protected and backed up for restricted use. This information was provided to the participants in the information sheet and by informing them directly before starting the interview.

3.7. Research Rigour

The trustworthiness, and thus rigour, of this research was met by ensuring credibility, transferability, dependability, and conformability. The technique confirming the trustworthiness of this research is based on the approach by Lincoln and Guba (1986).

Authenticity enhanced the rigour in this study through letting the participants speak freely, hearing their voices, and presenting their perceptions accurately. This was achieved by promoting richness of data, giving an accurate transcription, and using content analysis when analysing the data (Neergaard et al., 2009).

Credibility of this research was met by member checks to capture and portray a truly insider perspective (Guba, 1986; Neergard, et al., 2009). The participants were asked to confirm the researcher's reconstruction of what she was been told. This action was done to match perceptions between the researcher and the participants to avoid misunderstandings.

Transferability was achieved by giving thick description of the field experience. While dependability and confirmability were met by an external audit. External audit resulted in a confirmability judgement by ensuring the accuracy and evaluating the process, data and reconstructions in the research (Lincoln & Guba, 1986). External audit in this research was done by having the supervisor examine the process and product of the research study. Reflexivity was also done in this study to establish conformability.

CHAPTER FOUR: FINDINGS

4.1. Introduction

This chapter presents the results from the interviews with eight participants affected by the 2009 earthquake in Padang City and positions the results within the existing literature. For centuries, the unpredictable nature of earthquakes has created spiritual meanings and beliefs for humans. This study aimed to explore how religious belief and practices shape local communities' perception of risk and disaster, as is described in the first section of this chapter. The second and third sections cover the short term and long term coping mechanisms in the 2009 earthquake and try to define the role of religious beliefs and practices in coping with disaster. To identify the policy implication of this topic, for DM, the last section presents findings on the role of religious organisations in disasters.

4.2. Religion in Day-to-Day Life of the Community Shapes People's View of Disasters

Understanding the role of religious belief and practices in people's day-to-day life is important in determining how these elements may shape people's view on risk and disasters. The participants' day-to-day religious practices were explored by asking about their routine rituals and ceremony. The interviews showed that the participants had religious practices, both privately and with the other community members, based on their religious beliefs. Religious practices were one of the ways to reflect the depth of their belief. Results indicated that the participants from both religious communities do their community obligations by giving charity and donations to their religious organisation. From time to time, they also hold community rituals and ceremony. Despite religious and

ethnic differences, these daily activities connect the members in the community and connect them with their neighbourhood.

Eventually, these day-to-day beliefs and practices shape the participants' perception about risk and disasters. The participants described disaster as a natural phenomenon. Disasters, of which they used earthquakes as an example, were perceived as natural phenomena from the movement of the earth plates. The participants viewed disasters as a sign of destruction and structural changes of nature due to human's interventions. For most of them, bad actions from humans, especially toward their environment, result in disaster. Further investigation found that the participants' view of disasters was beyond a natural occurrence. Religious beliefs played a big role in their view of disasters. For them, disasters were considered as the will and act of God. The Islamic and Confucian day-to-day practices and their views regarding disaster will be described further in the next subsection.

4.2.1. Islamic day to day practices and risk-disaster perception

The Islamic participants explained that they do their religious practices by going to the mosque for community prayers, informal religious study for children in the mosque, mass prayers, duties at the mosque, weddings, funerals, and frequent donations that are distributed to people in need around the area or even in other neighbourhoods, cities, or provinces. Participants explained that the most common community prayers, where they will listen to the sermons, happen every Friday for the male participants or during the month of Ramadhan (see Figure 3, p. 39). For the female participant, visitation from religious leaders to one of the community member's house for female community gathering was usually the way for them to listen to the sermon, as explained by one of the participants:

Usually one of the neighbours will invite us, the female, to have a gathering, pray together and invite one of the ustadz (religious leader) to give us sermons. (Female, religious follower, Islam)



Figure 3. Prayer time at Nurul Iman Mosque, Padang City.

Source: Boy (2016).

Participants acknowledged that most of the time, the sermons talk about faith and *tawakkal* or trusting God's plan during hardship. The sermons highlighted that everything happens according to God's plan and they need to have faith and do good deeds. This teaching affects their view on disasters and risk. From an Islamic perspective, disasters happen as trials and tribulations for good persons to make them a better one. For example, one of the interviewees indicated that:

Disaster occurs from the constant changing of the earth structure that we cannot escaped from. God loves us. God gives us trials and tribulations to elevate our standard of life. Human power is tested because some of us are ungrateful. (Male, religious leader, Islam)

Disasters are also considered as punishment for humans who have done immoral activities, and as a reminder from God to stop doing bad deeds. This is shown from the participant's statement, such as:

I agree with people who consider disaster as punishment for humans. People in Padang have changed. Immoral deeds are everywhere. Teenagers hook up on the beach. LGBT (lesbian, gay, bisexual and transgender) were found in the city. Prostitution starts to grow in Bukit Tinggi. No wonder people in Padang got trials and tribulations by God. (Male, religious follower, Islam)

The interviewees indicated that disasters are punishments for humans with bad behaviours. They explained that disasters are punishments because humans destroy and do not take good care of the environment. They also connected disasters with immoral deeds against Islamic teaching. This is in accordance with a study by Merli (2010), which found that the Islamic population in Satun, Thailand, sees disasters as the result of bad human activities and as punishment from God.

Even though all of the participants perceived disasters as the will of God(s), it does not necessarily mean that they became fatalistic and just surrendered to their fate. The participants explained that religious beliefs teach them the value to do good deeds and to do their best in every situation. All of these will make them a better person in God's eyes. When they cannot change fate, then they will accept it as the will of God(s). This is in accordance with a study done in Aceh, Indonesia, indicating that even though Acehnese believed that the 2004 tsunami was an act of God, they still believed that they needed to do their best in order to be more prepared in the future (Adiyoso & Kanagae, 2013). The same findings also appeared in an Islamic community in Bangladesh where even though people believed that disaster is God's act, and this may be perceived as fatalism, they also believed that God gives them strength to survive and overcome disaster (Schmuck, 2000).

4.2.2. Confucian day to day practices and risk-disaster perception

Religious practices are part of the participants' day-to-day life. The Confucian participants do their religious practices by praying at the temple on Sunday. They explained that during prayer time they pray to the gods and goddesses, and to their ancestors for blessings and protection. They pray for the protection of their community, the citizens of Padang City, the citizens of Indonesia and, lastly, for themselves. Interviewees indicated that prioritising other people is in their teaching to maintain social ties because they are aware that they need each other to live. They also give donations

when they visit the temple and some bigger donations from time to time, which was explained by one of the interviewees:

Just put the donation inside the box. You can put the money inside the envelope and if you'd like, write your name and address on the visitor book. We [the temple organisation committee] only need the name of the people who come here and give some donations so we can pray for them. Some people transfer the donation directly to our bank account. We also note their name in the book, but never the amount of the donation. (Male, religious leader, Confucian)

Every first (*Imlek*) and 15th day (*cap go meh*) of the first month of their lunar calendar, the temple will perform a big ceremony for their ancestors. The community organisation in the temple invites people from the neighbourhood, as well as poor people, so they can distribute the donations to the people in need, either from the Confucian community or from other religions. This event gives them the chance to interact with their community and other communities around them (see Figure 4).



Figure 4. *Hin Kyong Temple in Kampung Cina, Padang City during the cap go meh for Chinese New Year*

Source: Haryanto (2016).

These religious practices connect the members in the community and connect the community with its neighbourhood. It relates to the Confucian value of benevolence, which is the Confucian way of extending love and favours (Qiyong & Tao, 2012). These activities are found to be one of the resources that are available for individuals and the

local community. Similar findings appear in Fijian Christian, Hindu, and Islamic communities, where religious activities are part of day-to-day social and cultural practices (Gillard & Patton, 1999). Inviting people from their community, and non-Confucians who live in and outside their neighbourhood, to attend their ceremony, strengthens the social ties at community and neighbourhood level.

Benevolence, as the Confucian way of life, also affects how they perceived disasters. Indeed, the Confucian participants viewed disasters as *karma* from nature due to humans' behaviour. Interviewees indicated that humans' greediness in corrupting the natural resources cause the changes in earth structures and, thus, is believed to create disasters. People believed that this karma comes from god(s). The view of disasters, as the will of God(s) from heaven, was also found in Chinese Confucian tradition after the Sichuan earthquake. Confucians perceived the earthquake as a message from heaven that people, especially the ruler, had upset the order from heaven (Schneider & Hwang, 2014). This is reflected in the following statement:

There are two versions that are responsible for disaster occurrence: cause and effect karma and natural causes. The earth spins and there are some weak parts because humans take the natural resources. (Male, religious leader, Confucian)

The findings above show the position of religious beliefs and practices in participants' day-to-day life and how they shape participants' view on disasters. As a result, religious beliefs and practices influenced how the participants coped during and after the 2009 earthquake, as discussed in the next section.

4.3. The Effect of Religious Beliefs and Practices in the Communities' Short Term Coping after the 2009 Earthquake

To explore the effects of religious beliefs and practices in the community after the 2009 earthquake, the participants' experiences during and after the event were explored. The interviews showed that the interviewees learned to deal with disaster based on their knowledge from previous experiences and from the information given by other people such as family, friends, and acquaintances. Participants explained that they deal with earthquakes based on their experiences in the 2009 earthquake and the 2007 West Sumatera earthquake. Local people learned to recognise the tsunami signs and some even checked the signs by themselves on the beach after the earthquake. They did not rely on the tsunami warning siren or on the announcement from their local government because the information was not evenly spread; hence, it was faster to find the information by themselves or from the media. The mosques and temples also got the information from the media. Some participants learned from the information provided by the government about the tsunami prone area and the location of the evacuation zone, but others who did not get the information learned from their experience which tall buildings are earthquake-proof that they could use for evacuation. They also learned the time they needed to evacuate to the hill if they could not reach the other evacuation areas on time.

When the earthquake happened, we evacuated ourselves and our family from inside the building. After that, we listened to the news on TV if there is a chance of tsunami. After the 2009 earthquake, we learned which buildings are safe. This two-stories building in front of us, was fine during the previous earthquake so we can evacuate there. Otherwise, we evacuated to the hill....
(Male, religious follower, Confucian)

The participants also learned to deal with the earthquake based on other people's experiences. They learned about tsunami from the 2004 boxing day tsunami in Aceh through their friends and relatives or from the media. This shows how previous

knowledge and cultural traditions can be an alternative to dealing with vulnerability and building resilience (Wenger & Weller, 1973).

Furthermore, the participants indicated that they coped with the disaster by relying largely on community members. Local people were the first to help their community neighbourhood during the evacuation and rebuilding process. The ones who were in need did not hesitate to accept the help from their community because they were sure they could rely on them. They also emotionally coped with such experience by having faith that everything happens for the best. God(s) always has a purpose and it is for humans' greater good. This faith gave them reassurance in facing disasters and contributed to positive coping.

4.3.1. Confucians experience in the 2009 earthquake

Following the 2009 earthquake, Confucian participants did not wait for the government or other organisations to help their neighbourhood to evacuate. They realised that there were many people needing help so the relief distribution from those agencies was unevenly distributed and not delivered in a timely fashion. This is in accordance with the findings by Rodriguez, Trainor, and Quarantelli (2006) which showed how various social systems in the community bounced back together after Hurricane Katrina.

As recounted by one of the Confucian participants:

In the 2009 earthquake, we helped each other. We are the first one that can help our neighbour. So after we evacuated, we helped the others who were injured and needed help. We heard that the government helped with the evacuation but they did not come to our place. There were too many areas they needed to cover. (Male, religious leader, Confucian)

The interviews indicated that Chinese Confucians did not get information and resources as much as other communities. The social exclusion of Chinese with other Indonesian ethnicities has been emphasised for a long time (Alfidarus, 2009). This finding is similar to Alfidarus (2009) who noted the uneven distribution of relief in the 2009 earthquake,

especially for people who lived in the Chinese quarter. This is why the support from the Confucian community members was important during the event.

The Confucian community helped both their own members, and people from other religions and surrounding neighbourhoods. One of the interviewees stated:

We helped each other, whether they are from our neighbourhood or from outside Kampung pondok [his neighbourhood]. (Male, religious leader, Confucian)

This statement shows how the community worked in helping each other to face the disaster. Community contributions in disaster were also seen in the Muslim community. The experience of Muslim participants will be discussed in the next section.

4.3.2. Muslims' experience in the 2009 earthquake

Muslim participants indicated that in the 2009 earthquake they received help from their community, even though some knew the location of the shelters. This is reflected in the following statement:

The neighbour came to check on me and to help me evacuate. I told them I'd just wait outside the house for my grandson to check if there's tsunami warning. If yes, then we evacuate. Otherwise, it's better to stay at home. We are fine here. (Female, religious follower, Islam)

The participants recounted that just after the earthquake they heard that some of the mosques and schools in Padang City, especially the big ones, also became shelters that provided basic needs for those who were affected. The participants thought that the use of mosques and schools as shelters was because most of the schools and mosques are multiple storey buildings; thus would be big enough to accommodate people affected by disasters. The government distributed basic needs including food, clothes, and emergency medicine to the shelters. One of the religious leaders said:

I worked as one of the logistic officer in the city council and also as one of the leader in the organisation at the mosque. In the earthquake, the government dropped logistic to our place, such as food. They also trained us to help the community after the earthquake. (Male, religious leader, Islam)

The Muslim participants recounted their experience in the 2009 earthquake as scary. However, they also had faith that whatever would happen to them was God's will – and God's way is the best way. All the participants acknowledged that this faith greatly helped them cope with the 2009 earthquake.

4.4. The Effect of Religious Beliefs and Practices in the Community's Long Term Coping after the 2009 Earthquake

The experiences in the 2009 earthquake urged the participants to pray more as their faith deepened. The interviewees recounted that after the disaster they tried to do better for the community such as by helping their neighbours, donations and charity, and praying more often, either by themselves or by performing community prayers. These attitudes show that with their religious beliefs about disaster, the participants did not present a fatalistic attitude when facing such an event. People emphasised that their religious beliefs helped them to understand why the earthquake happened and urged them to do their best to cope with the situation. Participants indicated that such beliefs and attitudes were positive as it gave them a sense of hope, control over the chaotic situation during and after the earthquake, and gave them a purpose to bounce back after the experience and losses. The disaster also strengthened their religious belief and made them feel closer to God(s). Other studies found similar results such as Schmuck (2000) in the Bangladesh Islamic community facing frequent flooding, and Chan and Rhodes (2013) who found that positive religious coping among female survivors after Hurricane Katrina helped with their posttraumatic growth. In the same vein, Smith et al. (2000) found that after the 1999

Midwest flood, religious coping resulted in more positive psychological outcomes such as a decreased number of people with depression and stronger religious faith.

4.4.1. Long term coping for Muslim participants

Participants explained that after the earthquake, more Muslims were going to the mosque to pray. They also held a mass prayer gathering as their way to ask for God's protection and to be thankful after surviving the earthquake. Participants mentioned more invitations to one of the community member's houses for community gathering. For them, having faith gave them hope to recover after the disaster and reasons not to be drawn by the grief. The interviewees' statement about their faith is such as:

Of course disaster changed us. We become more faithful, pray more, make our best and do good so we will be protected from earthquakes. (Female, religious follower, Islam)

Muslim religious leaders also gave people guidance and advice about the role of God in disaster and about having faith in God's will. They believed that by having a stronger faith, people would have better emotional resilience, thus not being drawn to depression after the event. This is reflected in the following statement:

We focus in developing people's faith towards God so they will be stronger and will not be distressed after the disaster. (Male, religious leader, Islam)

4.4.2. Long term coping for Confucian participants

The Confucian participants also admitted an increase in frequency of praying to their Gods and their ancestors at the temple after disasters. There was an increase in the number of people who prayed in the temple after the earthquake, as recounted by one of the interviewees:

We can see the increase of number of people coming to the temple to pray after the earthquake. Of course it is because our faith is stronger. (Male, religious leader, Confucian)

Participants explained that more people came to the temple to pray by themselves. The religious leaders only gave them religious guidance, such as to whom they need to pray, when the person approached them for religious guidance. A difference, to that of the Muslim community, was that there was no increase in the number of collective prayers or ceremonies after the earthquake. As explained by one of the Confucian leaders:

The temple does not arrange for special rituals for the community after disasters. However, if someone approach us and ask us to guide them to pray to the gods and their ancestor, we will help them. (Male, religious leader, Confucian)

This section has explained the role of religious beliefs and practices in coping after the 2009 earthquake for both Confucians and Muslims. The findings are summarised in Table 3 (p. 48). Findings showed that religions influence how people coped with the disaster and emphasised the role of religious communities in the 2009 earthquake. The role of religious organisations in each community was also important after the 2009 earthquake, which will be discussed in the next section.

Table 3. Summary of findings for Confucian and Muslim participants

	Confucians	Muslims
Perceptions	Disaster as natural occurrence is a <i>karma</i> from god(s) due to humans' bad interventions toward the nature.	Disaster as a natural event comes from God as trials and tribulations for good person to be a better one and as punishment for humans bad deeds.
Practices	Sunday prayer to the gods, goddesses and to their ancestors, donations, big ceremony every 1 st and 15 th day of the first month annually.	Community prayers, informal religious study for children, mass prayers, duties at the mosque, wedding, funerals, charity/donations.
Short term coping	The community helped each other and their neighbourhood, any religions.	They relied on the community more than on government and non-government agencies; Mosques worked as shelters.
Long term coping	Positive religious outcomes, stronger beliefs; increased frequency of prayers; there is no increase in community prayer and no community development programme; increase of donations.	Positive religious outcomes, stronger beliefs; increase of community gathering and community/mass prayers; increased donations; community development programme at the mosque.
Outside aid	No relief and community development programme at the temple and no information so far has been given to the temple for the community.	Relief programme from the government at the mosques; community development programme for coping after disaster; disaster materials from the government.

4.5. Religious Organisations' Role in the 2009 Earthquake

Religious organisations had a significant role in the religious community in Padang city recovery after the 2009 earthquake. Muslim participants explained that religious organisations in mosques worked with the government to provide shelters and items needed by people who were affected by the earthquake. They collected donations from within and outside of the community, and distributed it to people in need. They also explained that the organisation provided guidance for people who came to them; as one of the interviewees said:

People came to us for guidance. Sometimes they came and talked to us in private about why this [earthquake] happened to them. (Male, religious leader, Muslim)

Muslim participants also indicated that they were asked by the local government to help their members cope with the situation and to be mentally better prepared. Local government also distributed books and materials about disasters to the mosques but without any follow up on the longer-term recovery, as recounted by one of the interviewees:

Almost all mosques in Padang City were asked by the governor and local disaster management agency to prevent panic and trauma in the society after the 2009 earthquake. Local government gathered ulama¹ and lecturers from the UNP² to train them as a trainer, before sending them back to help the society recovered from the event. In 2010, this TOT (training of trainer) were done three times, with 15 people were trained each time; they were from Pesisir Selatan county, Padang city, Padang Pariaman city and county, Agam county, Pasaman and West Pasaman county. (Male, religious leader, Islam)

For Confucian participants, the role of religious organisation was mostly in the form of donations and charity. Participants noticed the increase of donation collected from the temple after the earthquake. There was also an increase of donation distributions among their community and other communities living around them. The Confucian community in the temple received funding from the members' donations. The interviewees explained that for them, charity was the way to give back to the community and to maintain good relationships with others. This activity helped their community affected by the disaster to recover and bring well-being to them. One of the interviewees said:

The temple collects donations and charity and distribute it to the community. We helped the community and our neighbourhood because during disasters, they are the one who come to help us. (Male, religious leader, Confucian)

¹ Ulama is a body of Muslim scholars or religious leaders (Source: Collins Dictionary)

² UNP (*Universitas Negeri Padang*) or Padang State University

For the community development and collective prayers, the temple coordinated other organisations, such as the Catholic Church and the Buddhist temple, in the neighbourhood. One of the religious leaders said:

We did not really have community development programmes after the disaster. We did the religious rituals and ceremonies and let the members pray by themselves. However, we coordinated our disaster relief programme with the Catholic church and also the Buddhist temple not far from here.
(Male, religious leader, Confucian)

The above statement highlights the difference between the support received by the Muslim and Confucian communities. Some of the Muslim interviewees noticed the help they got from the government in the form of shelters, learning materials, and guidance, as shown in the interviews from the previous section. Most of the mosques also got learning materials about disaster and some training, even though the programme stopped after a year. One of the Muslim interviewees said:

In 2011 they still held the training for the religious leader though not much. Then they just stopped. (Male, religious leader, Islam)

However, the Confucian interviewees explained that they did not get the same materials. The government did not reach out to them for the community development programme or for disaster relief programme.

There was never a disaster programme from the government here. Maybe it is because we focus on performing rituals not the community programme.
(Male, religious leader, Confucian)

4.6. Conclusion

Findings indicate that religious beliefs play a significant role in the community's perceptions toward risk and disaster. The communities in Padang City did not see disasters only as natural phenomena, but rather perceived them as divine will and act. From the Islamic and Confucian participants' views, the 2009 earthquake happened because humans destroy the environment. The differences between the Islamic and

Confucian view is that the Islamic view perceives bad deeds not only as acts that harm the environment but also the immoral deeds people do which are against religious values, and, also, as trials and tribulations for good people. On the other hand, the Confucian view is more focused on the natural destruction caused by humans' collective behaviour destroying the environment. However, findings indicate that these views did not create a fatalistic attitude towards risk and disaster. While having the faith that everything happens as a result of God(s)' will, religious beliefs also encouraged the participants to do better and help each other in the different phases of the 2009 earthquake.

Religious practices are rooted in the everyday life of Confucians and Muslims. The Confucians regularly pray to the gods and goddesses and to their ancestors at the temple. They also perform ceremonies from time to time and give donations for the community and people outside the community. The Muslims do their practices through community prayers, informal studies, mass prayers, and giving donation from time to time. These daily activities become part of the culture and maintain the social links within the community.

Although they have different beliefs and practices, both religions play an important role in dealing with disasters. Participants learned to cope with disasters from the knowledge and values they have, such as from their religion. Religion helped them to understand why the 2009 earthquake happened, thus helping them to cope with the event by having the faith that disaster happens from God and it is for better. Their positive coping relates to their strong religious belief.

The assistance from their respective communities helped them to survive during the 2009 earthquake. With the discrepancies of relief distribution from the government, especially among the Chinese Confucians, findings indicate that religious organisations played a

critical role during and after the disaster. Members of the religious communities helped each other and helped others outside their community, regardless of religion, filling the gap that may exist from external intervention. These findings, and how religious beliefs and practices can be included in DRR and DM policies and actions, will be discussed in Chapter Five.

CHAPTER FIVE: DISCUSSION

5.1. Introduction

This chapter discusses the findings presented in Chapter Four by confronting them with the existing literature. The first part discusses the religious beliefs and practices in a community's day-to-day life, in Padang city, using theory and literature on vulnerability. Section 5.3 explores how religious beliefs and practices underpin a community's capacity to cope with disasters and links it with existing literature on coping, disaster and religion. Next, in section 5.4, the policy implications for disaster risk management are discussed and recommendations provided. The limitations of the study and recommendations for further research are examined following the discussion.

5.2. Religious Beliefs, Practices and Vulnerability Reduction Concept

Disaster is defined as “a serious disruption of the functioning of a community or a society, involving widespread human, material, economic or environmental impact which exceed the ability of the accepted community to cope with its own resources” (UNSDR, 2009, p. 9). However, the participants defined disasters not only from hazard perspectives but also from their beliefs. Though the participants believed disasters were natural phenomenon, disasters were also seen as having deeper meaning related to their beliefs. Both Muslims and Confucians believed earthquakes are the sign of human-caused natural destruction. Earthquakes were perceived as a trial and warning from God for human bad deeds – morally or from physically destroying the environment. This finding is in accordance with the research by Piggins (1980) which pointed out that it is believed that behind all events there are two causes: the physical and the moral, which aid humans in facing life events. Divine retribution explains the gap in natural disaster and gives meaning to the

situation. This belief may provide relief from the cognitive dissonance from the suffering (Sharp, 2014).

The influence of God as the cause of disaster can be one factor of disaster vulnerability as it creates low perception of risk and disaster (Gaillard & Texier, 2010). Relating disasters as divine retribution might create a fatalistic attitude and make the community more vulnerable (Paradise, 2005). Shifting the blame to God as the cause of disaster also becomes problematic as it hinders the improvement of the root cause of disaster. As stated by Gaillard and Texier (2010), it is a convenient way for the authority to evade the responsibility of dealing with the vulnerability in the society.

However, even though religious belief is one of the factors that may shape vulnerability, the study found no sign of fatalistic attitude toward disaster among the participants. The religious teachings told them to do their best in facing every situation. It also taught them that sometimes things happen differently from their previous plan. In that case, they believed that God(s) gives them a fate different from their efforts and it is for the best. Findings suggest that this belief creates positive re-evaluations of disasters and encourages local people to find benefits from the event. This point of view is not a fatalistic attitude because it is emphasised in committing the best action and attitude in every situation, such as disasters. This finding is different from those of Paradise (2005) who related a view with fatalistic attitudes in the Moroccan Moslem population. However, it matches the study by Adiyoso and Kanagae (2012) in Aceh, Indonesia, which found that believing disaster is an act of God does not cause fatalistic attitude because of the teaching that obliges people to do their best. The authors stated that, rather, it may increase people's ability to bounce back following disaster.

Religious beliefs and practices are part of the Confucian and Muslim culture, and can be one of the resources or capacities used to overcome disaster. Religious practices, which involved community participations such as praying in the temple, religious ceremonies, and donations for the Confucians community and community prayers, gatherings such as weddings and funerals, charity and donations for the Muslim community, in Padang City, increased social capital at community level. This study points out that such practices strengthened the bonding social capital inside the community and bridged the community with other communities (Aldrich & Meyers, 2014). Religious practices and beliefs imply altruism and kindness to others, which is strongly related to faith (Ai et al., 2013). Altruism and kindness strengthen social networks at a community level and have been identified as one of the key resources in facing disaster. Spiritual support and deep social connection give greater hope and optimism and help the community to be more resilient after a collective trauma in disaster (Ai et al., 2013). Therefore, solidarity network among the Confucians and Muslim communities, as well as with other communities in Padang city, appears to be a capacity that reduces local people's vulnerability before, during, and after disasters.

5.3. Religious Beliefs and Practices as Local Community's Capacity

Religious beliefs and practices played a role in the Confucian and Muslim communities' short term coping in the 2009 earthquake. Both communities relied on their members during the event. Their capacity for self-protection, which they used during and after disaster, was rooted in their endogenous resources such as their values, culture, and day-to-day practices. Their religious practices, which occurred on a day-to-day basis, linked the community and bound the community with other communities during and after the event. This network nurtured social capital. The structure of social network influenced

the community's ability to cope and bounce back in disaster (Aldrich & Meyer, 2014). It further helped the community in coping and gave them emotional supports during and after disasters.

Both Confucian and Muslim communities coped with the 2009 earthquake by relying on their beliefs and on their community. Their beliefs influenced their coping mechanism and helped the community in understanding why disaster happened to them. Even though literature shows that relating disaster as an act of God can lead to a fatalistic attitude (Paradise, 2005; Piggin, 1981), the findings from this study indicate that such beliefs made people stronger and helped them recover better. The 2009 earthquake left them questioning why the devastating experience had happened to them. Religious belief gave them a way to cope with the situation by providing them with answers, guidance, hope, and solace. This is aligned with previous research that showed that religious beliefs provide a sense of power, intrinsic self-worth, optimism, and a feeling of control and safety (Bradshaw & Ellison, 2010; Fujiwara, 2013; Piggins, 1981). Ai et al. (2013) further emphasised that the degree of spirituality is related to low levels of depression.

This current research showed that communities' religious beliefs and practices also helped them successfully cope with the earthquake. Immediately after the earthquake, the community helped their own members and other people to evacuate from the building and cope with the situations before the aid from the government and NGOs arrived. They helped each other and helped others they did not know. This act of altruism is related to religious and cultural values. Altruism creates a sense of interconnectedness among the community, even with strangers, during disasters. It is also related to people's resilience as it improves efficiency of local communities' coping mechanisms, thus enabling them to more ably deal successfully with future hazards (Ai et al., 2013). Although in disaster the community might be disorganised, disasters create a sense of belonging in the

community and engender new social adjustment (Piggin, 1981). Findings indicated that people prayed for safety and protection. Praying improved positive coping by giving them the reassurance, strength, and existential security from outside forces. Having a stronger belief contrasted a fatalistic attitude and might improve community efforts for both recovery and preparedness. A study from Chester and Duncan (2010) found that people pray to ask for protection as opposed to mitigating disaster. God provides existential security, meanings to life, religious identity, subjective well-being, rewards, and emotional support to people (Sharp, 2014).

Participants illustrated their growth in faith after the disaster. It was shown in the increase in community's prayer frequency in the places of worship after disaster; whether it was community prayer or prayer done privately was not important. The increased prayer frequency and the strengthening of people's faith related to better coping with disaster, as having stronger faith motivated them to do better in facing and avoiding another disaster. This is clearly a form of resilience. This finding is cognisant with findings from Blanc, Rahil, Laconi and Mouchenik (2016) who noted that stronger faith correlated with better resilience in the Haiti community after the 2010 Haiti earthquake. Stratta et al. (2013) also found that religious belief worked as a protective factor against traumatic consequences after a disaster. Following disaster, faith gives people the meaning and purpose of life – a new perspective other than destructiveness and despair.

There was a different focus among the communities' coping mechanism. The Confucian community focused more on altruism, by helping each other and doing kindness to the community, such as in the form of charity and donations. This is related to the Confucian's basic code of conduct, which is benevolence. Doing good deeds relates to improvements in their quality of life; as well as improving the bonding with their community and their link with other communities. This value is important in the DRR

process as it contributes to build community resilience (Ha, 2015). The Islamic community focused more on community religious practices as their coping mechanism. Findings indicated that the increased frequency of religious practices was one of the ways to strengthen their faith and a way to reach out to the community and maintain social links.

Overall, such coping mechanisms may help local communities to adapt to disasters, bounce back, and to be more resilient than before. Therefore, religious community could be drawn upon in supporting the community recovery and DRR and DM programmes. The role of faith-based community in DRR and DM programmes will be discussed in the next section.

5.4. Faith-Based Community in DRR and DM Programme

DRR and DM are long-term comprehensive processes that require collaboration, patience, and transparency (Ghafory-Asthiany, 2009). Increasingly, academics and practitioners emphasise the need for self-developed, culturally acceptable programmes that are compatible with the beliefs and customs of local communities (Gaillard 2005; Ghafory-Asthiany 2009). The approach is also found in the Sendai framework 2015-2035, which stresses the need for more community-based and cultural-sensitive DRR policies and actions.

Along with the involvement of other resources and organisations, the involvement of faith-based community can be an acceptable way to address goals of risk reduction and build community resilience. This is shown with the involvement of the Muslim and Confucian communities in the 2009 earthquake. Involving religious beliefs and practices within policies and actions geared towards DRR and DM can be helpful to empower

religious communities and reduce their vulnerability by creating a framework for social inclusion (Dackson, 2010). Surely, diversity in social networks, with its high degree of divergence, can be an obstacle. However, it also provides the help necessary to rebuild the community. This bridging network was also found between the Chinese and Padang ethnicity after the 2010 disaster in Nias, Indonesia (Guarnacci, 2016).

In the Muslim community, religious leaders became one of the sources for guidance, leadership, and spiritual support. In the Confucian community, they became one of the leaders in the community's activities and recovery. Yet, it is important to note that the role of religious leaders in disaster-related programmes can be complex as it can be used for their own agenda and may, in some cases, pressure local communities in a way that negatively affects those most vulnerable (Fountain et al., 2016; Le De, Gaillard, & Friesen 2014).

However, the faith-based community in Padang city played a great role in assisting the community to cope after the 2009 earthquake. With or without the government programme, faith-based community organisations in the city tried to help and guide their community to cope with disaster and become more resilient with the resources and knowledge they had. Religious organisations and religious institutions are an important source of information for the community and can be used in shaping public attitude toward disasters (Adiyoso & Kanagae, 2013; Chester, 2008). Religious actors and institutions in the community understand the needs of a community affected by disasters and can convey the needs of such community to relief organisations. In Banda Aceh, Indonesia, the information about religion and disasters can be found in Friday sermons, religious meetings, and other activities in mosques. For example, Adiyoso and Kanagae (2013) explained that the community receive the information about the meaning behind disasters so they can change their behaviour to avoid the next disaster. This same concept

was used in Japan during the community recovery after the 2011 Japan earthquake. Japanese Buddhist leaders implemented the knowledge that everything is impermanent and thus people need to move forward and not become stagnant in the situation. These values may instil a positive attitude in the followers (Fujiwara, 2013).

Religious institutions in Padang city can also be an important source of community information for other relief organisations. They know the people in their community. Religious institutions also know the needs of their community, as they are one of the places the community reached out to in disasters, and the one who reached out the community. For example, after the 2010 flood in Pakistan, the community affected by the disaster modified its own shelter to be culturally and religiously appropriate for its members, which had not been provided by the relief organisations (Aijazi & Panjwani, 2015). Hence, religious institutions may help bridge local communities with foreign organisations and can provide culturally appropriate needs to the people affected by disasters (Fountain et al., 2015). Therefore, the role of religious leaders and religious institutions should be integrated into the policies and actions targeting DRR and DM. However, considering the sensitivity of the issue of religion, it is important to be careful with the way this is done. It is also important to carefully regulate these policies and actions to avoid giving too much power to religious organisations. Yet, the present study points out the need for more dialogue and actions between faith-based organisations and external agencies involved in DRR and DM.

5.5. Recommendations

Little research has been done on the relationship between religious beliefs, practices and institutions, and DM. The findings from this study may provide some insight for emergency/disaster management practitioners and policy makers by helping them to

understand the community's beliefs and practices and their significance in disasters. The findings imply that people's religious beliefs and practices affect their attitude toward risks and disasters. The results of this study indicate that understanding their beliefs and practices can benefit policy makers and practitioners in developing policies and programmes in DM and DRR. The information about disaster preparedness, such as disaster warning and evacuation, could be distributed through religious organisations, as one of the organisations that play a big role in day-to-day community life. Religious organisations can also be involved in the relief process, such as the distribution of items to make sure the needs of the affected community are covered in a culturally appropriate way. This study also gives rise to various recommendations for practitioners and policy makers in DRR and DM:

- DRR programme, including community education and development programme, should be culturally sensitive and, to some extent, involve the religious leaders and followers as the community in the area.
 - The government and NGOs should reach the religious community in the area to help in reaching all of the citizens.
 - Religious communities can help the government in covering the gap in the area or people they cannot reach for community education and development programme.
- To create more efficient and sustainable programmes, it is essential to build programmes using existing community structures that are culturally and socially embedded in the society.
 - Reaching not only administrative but also community and religious leaders, help the outside parties (government and NGOs) to reach and do their programmes efficiently since they know well the needs and customs in their community.

- These leaders are also the ones who stay in the community. Hence, by maintaining the relationship and communication with them, they can make the bridge between external agencies (government and NGOs) and local communities.
- Religious leaders, as well as other community leaders, can be involved in DRR and DM programmes to reach out to local communities.
 - Religious leaders and other community leaders are the ones who were listened to and trusted by their community – more than the government or outside parties. Therefore, involving them in DRR and DM programmes may increase local communities’ participation in DRR and DM activities.

Overall, further research is needed to develop programmes involving community groups, such as faith-based organisations. Further study connecting religious knowledge and practices with disaster knowledge is also required.

5.6. Limitations of the Study

There are some limitations in this study. First, this study only covered two religious beliefs (Islam and Confucianism) in an area which has six official religions. Even though the two religions are the main religions in the area, and represent the view from monotheistic and polytheistic beliefs, a more thorough study covering all beliefs is needed in the future to provide a comprehensive understanding about the community.

Second, by using purposive sampling and recruiting participants in places of worship, it is acknowledged that the study is prone to selection bias. There is a possibility the participants are not equally presented, with the view of the more religious community members more present. This research is also prone to response bias and recall bias. Response bias might happen because the participants want to be a ‘good subject’ hence

they would try to give the response that is expected by the researcher. This bias was avoided by trying not to influence the participants and emphasising that they should provide answers according to their own view rather than confirming what the researcher thought from those answers. Power relations between researcher and participants that might lead to bias was also noted. This bias was reduced by the fact that the researcher and participants came from the same area and have the same cultural background. Recall bias might happen as the earthquake happened in 2009, more than six years prior to the interview.

Third, even though the researcher comes from the same country and has her roots in the community, the researcher is not an expert in theology, whether it is Islamic or Confucianism. The researcher's focus is DM. This study would potentially benefit from a deeper understanding of the religious beliefs. However, relating the findings with theories in DM, using the researcher's background as the one who came from the same roots with the community and is currently studying DM, can bring insights that an outsider might lack.

Lastly, another limitation of this study relates to its small sample size. The interviews involved only eight participants in total. This limitation is strongly linked to timeframe and funding constraints related to a Master's dissertation. However, this small number of interviews does not affect the quality of the data collected. Indeed, often the interviews became almost focus group discussions as other people in the community, such as the family members of the participants, colleagues and neighbours, joined the interviews and added information; thus adding to the researcher's understanding of the topic.

5.7. Recommendations for Further Study

This study has explored how religious beliefs and practices affect the view of people in the community towards risk and disasters, and the role of beliefs and practices in coping with disasters. The 2009 earthquake in Padang city was used as the case study to explore these issues. As mentioned above, the study shed some light for further research on the effects of religious beliefs and practices in DM and DRR. Further study with a larger sample size and including other beliefs in the community could be done to gain richer data and understanding of the topic. Further research could expand to another region in Indonesia to obtain more comprehensive and generalised data as Indonesia is a multi-ethnic and multicultural country. Quantitative and mix-method approaches could be used to get a deeper understanding on how religious beliefs affect the community's view towards disasters and risks. Further study exploring the connection between religious knowledge with disaster knowledge, especially in Indonesia, is also needed to understand the foundation of how communities view risks and disasters.

5.8. Conclusion

This study investigated how religious beliefs and practices in day-to-day life affect a community's disaster and risk perception and how these are relevant in helping its members cope during and after disasters. The objectives of the study were answered using the 2009 earthquake in Padang city as the case study. This study found that religious beliefs and practices, forming the community's perceptions on disasters, can be one vulnerability factor. Using God(s) as the cause of disasters covers the real issues that need to be solved in the community such as poverty, bad planning and infrastructure. However, as part of the culture, religious beliefs and practices build and strengthen the community network. Better social networks enhance the capacity needed to bounce back

in, and after, disasters. This shows that religious beliefs and practices are important elements to consider when looking at vulnerability and capacity to disasters.

Religious beliefs and practices can also be used in a coping capacity during disasters as it gives the emotional and social supports during and after disasters. The conception of disasters as the will of God(s) provides the community with emotional and spiritual support, answers, guidance, and connections to higher authorities after disasters. All of these positive aspects of spirituality relate to more positive coping. The social networks built through day-to-day practices also bind and link the communities in and after disasters. Religious practices, such as the act of altruism done by the religious community, build the sense of interconnectedness. They also create a sense of belonging in the community. All of these elements improved the efficiency of the community's coping with disasters.

Religious leaders and organisations are influential at local community level. Therefore, the involvement of religious organisations as one of the resources to deal with community-based DRR and DM programmes may be useful. Religious organisations can help in building followers' perceptions and attitudes toward disasters. They provide information to their community members. Religious organisations can also connect the community with other communities and relief organisations. The information they have on their own community can be used to administer appropriate relief items given by other communities and relief organisations. Thus, faith-based community, led by religious leaders, can be the resource to reach out and insert disaster knowledge and programmes into the community. However, consideration is needed when giving power to religious organisations to prevent giving too much power to specific organisations. Policies and programmes geared towards DM and DRR need to ensure equality and prevent giving advantage to a particular community.

The concept of religious beliefs and practices, as one of the factors in people's vulnerability and capacity, is nothing new in DM and DRR. The findings of this study can be used to promote community participation in disaster planning and programmes through advocating community-based approaches. Lastly, the present study adds to the existing body of knowledge on religion and to the rapidly growing field of disaster management research.

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APPENDICES

Appendix A: Promotional poster

Research participants needed

Are you:

- OVER 18**
- EXPERIENCED THE 2009 EARTHQUAKE**
- RESIDENT OF PADANG CITY**

Please share your experiences and thoughts about the 2009 earthquake in a 30 min interview

I am a Master Student in the Emergency and Disaster Management Department at the Auckland University of Technology in New Zealand interested in understanding how your faith affect your view and way in dealing with the 2009 earthquake. I would like to invite you to contribute your experience by talking with me about your experiences in the event.

As a token of appreciation for participating in this research, you will be given a small gift

For more information about this research or to volunteer to participate please contact me at:

Gianisa Adisaputri

Phone: 081298287504

Email: gianisa.adisaputri@yahoo.com

This research has been reviewed by and received ethics clearance by the Auckland University of Technology Ethics Committee.

Appendix B: Brochure

Does this
sound like
you?

Adult,
over 18
years old

Resident
of
Padang
City

Experienc
ed the
2009
earthqua
ke

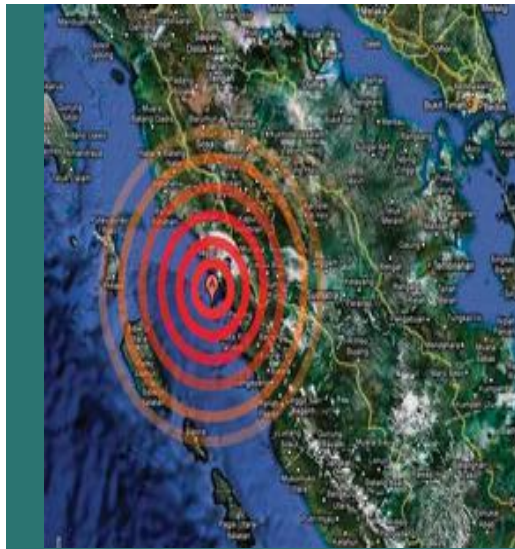
Willing to
volunteer
your time
to
answer
some



Research participant needed

I am Gianisa Adisaputri, Master Student from Auckland University of Technology in New Zealand inviting you to participate in my research





*Share
your
story by
participa
ting in
my
research*

...

How to participate:

You have three (3) days to consider this invitation.

You will be asked to fill a consent form prior to the interview.

If you are interested in participating with in this research, you can contact me at:

An Invitation

I am a Master Student from Auckland University of Technology (AUT) located in New Zealand I would like to invite you to participate in my research project titled *"How belief system can affect psychosocial behavior following a disaster: A case study of Padang earthquake 2009"*.

This study aims to understand how different faith affect the psychosocial behavior of the people after the Padang earthquake.

What will happen in this research

You will be asked to share your experiences and thoughts about the 2009 earthquake during 30 minutes of interview.

Your privacy will be protected throughout this project. Your name and other identification will be removed or changed as necessary in all written materials and publications.

Contact Details:

AUT University
Street Address
City, ST ZIP Code
Email Address:

gianisa.adisaputri@yahoo.com

Appendix C: Information sheet

Participant Information Sheet

Date Information Sheet Produced:

25 January 2016

Project Title

How belief system can effect psychosocial behaviour following a disaster: A case study of Padang earthquake 2009

An Invitation

My name is Gianisa Adisaputri, a Master Student from Auckland University of Technology (AUT) located in New Zealand. I would like to invite you to participate in my research project (titled above). This research will contribute to my master degree qualification. Whether or not you take part is your choice. If you do not want to take part, you do not need to give a reason. If you do want to take part now, but change your mind later, you can pull out of the research at any time prior to the completion of data collection (30 April 2016).

This participant information sheet will help you decide whether you would like to take part in this research. It set out the purpose of this research, what participation would involve, what the benefits to you might be and what would happen after the research ends. I will go through this information with you and answer any question you may have. You have three (3) days to decide whether or not you will participate in this research.

If you agree to take part in this research, you will be asked to sign the Consent Form on the last page of this document. You will be given a copy of both the participant information sheet and the Consent Form to keep.

Please make sure you have read and understood all the pages.

What is the purpose of this research?

This study aims to understand community perspective about how different faiths affect the psychosocial behaviour of the people after the Padang earthquake. Understanding local perceptions is relevant in disaster management and can help in decision making, creating the policies and also in practice.

This research provides you, as the participant, the opportunity to tell you story and view about the disaster. It can give an understanding for people outside the community about how your view about disaster and you cope with it. For me, as the researcher, this research is one of the requirement to complete a Master degree programme in AUT. This research is also a preliminary research that will further be worked as PhD research topic. It is hope that this research can contribute to knowledge development. The findings from this research can be useful for disaster management practice, especially in psychosocial aspects and in working together with the community.

How was I identified and why am I being invited to participate in this research?

This research will involve a questionnaire and an interview with 4 participants in Padang City. You are invited if you are a resident of Padang City that experienced the 2009 earthquake, an adult (>18 years old) male and female, available at the time of the research and give your voluntary consent. These may include religious leaders and followers from different ethnicities, religions and educations.

This research does not invite children, non-resident of Padang City, residents who did not experience the 2009 earthquake, people who will not available at the time of research and people and people who do not give their voluntary consent.

What will happen in this research?

This research will involve a questionnaire and an interview that will take up to 30 minutes. During the interview, I will ask some questions, take notes and record the interview. The questionnaire and data from the interview that I will get will be stored safely to protect your privacy. Only I and my supervisor will be able to access it.

The data from the questionnaire and the interview then will be analysed using statistic program. The result will be published as a dissertation.

What are the discomforts and risks?

It is acknowledged that the people selected to participate in the research may experience 'negative flashback' during the interview process

What are the benefits?

This research can be your opportunity to tell your story and view about the 2009 Padang earthquake. It can give other people who did not experience it understanding about your view and how you cope during the earthquake.

This research benefit me as the completion of study to get my master degree from Auckland University of Technology (AUT). This research is also will be preliminary research for my PhD research topic.

The finding from this research also can be useful for disaster management practice.

How will my privacy be protected?

Any personal identification will be removed or changed as necessary on the transcript and written material. Pseudonym will be used in all publications when needed. You will be asked not to discuss your response with anyone. No third party will have access to any data collected in this research.

Your privacy will also be protected by the limitation of data access. All data will be stored in a locked cabinet which only can be accessed by the research supervisor and me.

What are the costs of participating in this research?

This research will take about 30 minutes of your time.

What opportunity do I have to consider this invitation?

You have three (3) days to consider this invitation.

How do I agree to participate in this research?

You need to fill a Consent form before participate in this research. The consent form is available on the last page of this document. If you do not fill the Consent Form you will not be able to participate in this research.

Will I receive feedback on the results of this research?

The result of this research will be published in the form of dissertation that will be sent to local administrative office so you can have the access to it.

What do I do if I have concerns about this research?

Any concern regarding the nature of this project should be notified in the first instance to the Project Supervisor, Eve Coles, eve.coles@aut.ac.nz, (+64)9921 9999 ext 7499

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTECH, Kate O'Connor, ethics@aut.ac.nz, 921 9999 ext 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet and a copy of the Consent Form for your future reference.
You are also able to contact the research team as follows:

Researcher Contact Details:

Gianisa Adisaputri

Mobile phone: (+62)81298287504 or (+64)273637993

Email: gianisa.adisaputri@yahoo.com

**Approved by the Auckland University of Technology Ethics Committee on 4 March 2016, AUTECH Reference number
16/49.**

Appendix D: Interview questions

1. How would you define a disaster?
2. Would you please tell me about your experience during the 2009 earthquake?
3. Who/what do you believe is responsible for disasters?
4. Why do you believe this figure is responsible?
5. What is the disaster-related education you provide in the Temple/Mosque? (For religious leaders). What is the disaster-related education you get from the Mosque/Temple? (For religious followers)
6. Do you talk about disasters in your sermon? (For religious leaders). Do you get information about disaster from the sermon during the preach? (For religious followers)
7. What is the message from the sermon?
8. What is the role of Temple/Mosque in disaster?
9. Has your faith changed in any way since the disaster?
10. If yes, in what way your faith changed after the 2009 earthquake?