Public Health and Disaster Risk Reduction: Understanding Similarities and Divergences in Jakarta, Indonesia

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Abstract

By fostering a preventive approach, Public Health (PH) has achieved some success in reducing the mortality from diseases. On the other hand, the increasing number of people affected by disasters mirrors the limited impact of Disaster Risk Reduction (DRR) policies. This research aims to examine why and how PH and DRR have had such divergent effects in Indonesia, particularly in Jakarta, one country significantly affected by both diseases and disasters. Similarities and divergences in PH and DRR policies and practices have been identified based on a series of interviews and focuses group discussions (FGDs) that were conducted between January and February 2019. The research participants were from a wide range of backgrounds, including government agencies, Non-Government Organizations, community groups, and local people to collect both a big picture as well as a fine-grained perspective on the implementation of PH and DRR in Indonesia. The research argues that improvement could be made in the current implementation of PH and DRR in Indonesia by identifying similarities and divergences of both sectors, particularly through availability and dissemination of laws and regulations; collaboration and partnership between various stakeholders, and continuous engagement and genuine local people's participation in the implementation of PH and DRR programs. Both sectors then could learn from each other.

Keywords: Public Health; DRR; Disease; Disaster; Policy; Indonesia;

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Abbreviations

AMCDRR	Asian Ministerial Conference on Disaster Risk Reduction
ASEAN	Association South East Asian Nations
BNPB	Badan Nasional Penanggulangan Bencana (National Disaster Management Agency)
BPBD	Badan Penanggulangan Bencana Daerah (Local Disaster Management Agency)
CBDRR	Community-Based Disaster Risk Reduction
CF	Consent Form
CSR	Corporate Social Responsibility
DHO	District Health Office
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EM-DAT	The Emergency Event Database
FGD	Focus Group Discussion
GERMAS	Gerakan Masyarakat Indonesia (Indonesia Community Movement)
GoI	Government of Indonesia
HFA	The Hyogo Framework for Action
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
IFRC	International Federation of Red Cross
JICA	Japan International Cooperation Agency
MoH	The Ministry of Health
NGO	Non-government Organization
PAR	Pressure and Release Model
PH	Public Health
PHO	Provincial Health Office
PIS	Participant Information Sheet
Puskesmas	Pusat Pelayanan Kesehatan Masyarakat (Community Healthcare Centre)
SFDRR	The Sendai Framework for Disaster Risk Reduction
UAHPEC	The University of Auckland Human Participants Ethics Committee
UNDP	United Nation Development Program
UNISDR	United Nation International Strategy for Disaster Reduction
WHO	World Health Organization

Chapter 1 – Introduction

This chapter provides an overview of the study. In the first section, a background of the emerging need for disaster risk reduction (DRR) to adopt some strategies from Public Health (PH) by identifying the similarities and divergences of both fields in delivering programs to communities are drawn upon. It then presents the research objectives of the study. The final section provides a brief outline of each chapter within this research project report.

1.1. Setting the Scene

There is no doubt that public health has achieved some successes in addressing health problems in the last hundred years through the prevention and intervention of certain health problems through several approaches such as improving sanitation, water purity, nutrition, and the control of infectious diseases via immunization (Novick, 2001). There has been a significant decrease of infant mortality rate in the world from 142 at 1950-1955 to 26 at 2010-2015 per 1000 live births (United Nation, Department of Economic and Social Affairs, 2017a). Another achievement of public health can also be seen in the rise of life expectancy at birth worldwide around 56.4% from 45.8 years at 1950 to 71.4 years at 2015 (United Nation, Department of Economic and Social Affairs, 2017b). On the other hand, the opposite trend has been shown in mortality rates caused by disaster related to natural hazards. Although there has been a reduction in disaster mortality in some countries and regions with the implementation of a DRR approach (UNISDR, 2009, 2011, 2013, 2015a), the exposure of disaster, particularly small-scale events in less wealthy countries, is still faster than the actions taken to reduce vulnerability (J. C. Gaillard, 2017; UNISDR, 2015a). The available global data from EM-DAT on disasters and mortality in the last thirty years from 1974 to 2003 have showed that the number of reported disasters has gradually increased from below 100 in 1974 to more than 400 in 2003 with the total case around 6,367 disasters (not counting epidemics). Even if the number of deaths has declined over the period globally, 75% of the total number of deaths (accounting for some 2 million people) are disproportionately from Asia. Moreover, the number of affected people shows an increased trend in line with the increasing number of disasters (Guha-Sapir, Hargitt, & Hoyois, 2004).

Public health development cannot be separated from biomedicine, and these are sometimes intertwined with each other (Gostin, 2008; Ryadi, 1982). Public health intervention aims to avert the occurrence of disease, while biomedical intervention usually aims to cure diseases after its occurrence. The target of the intervention is also different; public health addresses root causes of the diseases as the leading cause of the death such as environmental, social and behavioural factors, but medicine is primarily concerned with the reduction of overall impacts on health (Gostin, 2008). As many death tolls increase upon the spread of

diseases, curing affected people is equally important with preventing healthy people to be affected, and this is where public health lays its target. The prevention approach is claimed to have power in reducing the burden of disease, disability, and premature death, and prevention is often also considered to be cost effective compare to amelioration (Gostin, 2008).

Similarly, DRR also consists of actions to address the root cause of people's vulnerability that may come from environmental, social and behavioural factors and improving their capacity (J. C. Gaillard, 2017; J. C. Gaillard, Maceda, Stasiak, Le Berre, & Espaldon, 2009). This vulnerability paradigm was developed from the need to change the previously dominant hazard paradigm. Within the hazard paradigm, disasters were solely viewed as extreme (in magnitude) and rare (in time) natural hazards and efforts to address disasters often focused on monitoring, predicting and calculating the probability of natural hazards without considering its social aspects such as people and societies (J. C. Gaillard, 2017). The interest on studying the social aspects of disasters led to the development of a new paradigm of vulnerability that considered disaster as part of peoples' everyday lives, which may have varied from each other based on the root cause of vulnerability in terms of disproportionate access to resources and means of protection in society due to power inequities related to class, occupation, caste, ethnicity, gender, disability and health status, age and immigration status, and the nature of resultant social networks (J. Gaillard, 2019; J. C. Gaillard, 2017; Wisner, Blaikie, Cannon, & Davis, 2004).

The fields of PH and DRR are very dynamic. This is because there is no end goal per se, and rather, there is only some achievement in the continuing process. Given the preoccupation of prevention in PH and DRR, it will be beneficial to understand the similarities and divergences that have been taken by both PH and DRR in addressing the certain issues in relation to disasters. Previous achievements of public health that use a preventive approach in reducing the mortality from diseases will be a great source of learning for DRR in addressing future problems that arise in dealing with mortality from hazardous events because of people's vulnerability.

Indonesia, a developing country in Southeast Asia, implements both PH and DRR within the community because they are vulnerable to health issues as well as disasters. Data shows that public health efforts have a significant correlation to minimizing health issues, while DRR efforts are a relatively new approach which have not yet been proved in helping decrease disasters within a community. The parallels between these two fields is therefore a good case study area for this research.

1.2. Study Objective

Based on the conditions above, the objective of this research is to examine PH (in addressing disease) and DRR (in addressing disasters) in Indonesia, particularly in Jakarta, and then explore their similarities and divergences. To achieve this, the below questions will be answered.

1. What are the PH and DRR initiatives being conducted in Jakarta?
2. What are the outcomes of PH and DRR of previous mention initiatives?
3. Are there any available legal frameworks of PH and DRR? How does this framework contribute to the implementation of PH and DRR programs?
4. What are government and stakeholders' arrangements for PH and DRR? How could their collaboration and partnership influence the execution of PH and DRR programs?
5. Why is the engagement and participation of all stakeholders important in the implementation of PH and DRR programs?
6. How could the similarities and divergences of PH and DRR improve current conditions of PH and DRR implementation?

1.3. Study Outline

This research project report consists of seven chapters. *Chapter 1 - Introduction,* outlines the background rationale for the study and its objectives. *Chapter 2 - Literature Review*, explains the concept of PH and DRR. On the one hand, it reviews the concept and relationship of PH and healthy lifestyles. It then explores promotion and prevention programs and the component of PH implementation. On the other hand, the concept and relationship between DDR and sustainable livelihood are also explored. A review of DRR implementation follows. *Chapter 3 - Contextual Setting of the Study*, presents the context of Jakarta where the research is situated. *Chapter 4 - Research Design and Methods,* explains the research frameworks and study design. It describes the case study approach, data collection methods, data analysis, and ethical consideration. *Chapter 5 - Research Findings,* presents the main findings of the study. *Chapter 6 - Discussion,* explains the study results and its implications in the implementation of the programs. *Chapter 7 - Conclusion,* summarizes the findings and discusses the potential possibilities of what PH and DRR could learn from each other. It also identifies some limitations of the study and presents some suggestions for further studies into the future.

Chapter 2 – Literature Review

This chapter explains the concept of PH and DRR. It reviews the concept of PH and its relationship to a healthy lifestyle. It then discusses the concept of health promotion and disease prevention in public health and the various components of PH implementation. Furthermore, the concept of DRR and its relationship with sustainable livelihoods is also explored. The various components of DRR implementation.

2.1 Public Health

2.1.1 The Evolution of Public Health

The public health paradigm has evolved over time in accordance with changes in health problems within society and the advancement of health knowledge. The field has had six major eras in its paradigmatic evolution (Awofeso, 2004). The first era of PH was **Health Protection,** which spans from antiquity to the 1830s. The main paradigm of this era was that the regulation of behaviour within a social structure could be taken as preventive efforts to address disease. Moreover, religious beliefs and cultural rules were considered highly as primary means of taking action in protecting the health of individuals and their communities. The second era was referred to as **Miasma Control** from the 1840s to 1870s. In this period, disease prevention could be achieved by addressing the unsanitary qualities of an environment. As the unsanitary physical and social environment was believed to be the root cause of health, centralized action was taken to improve sanitation through creating set standards for drainage, sewage and refuse disposal. The third era was known as **Contagion Control** from the 1880s to 1930s. During this era, disease causations, the infected media, their isolation, and experimental transmissions were invented. Actions were made to interrupt the transmission of disease through water filtration processes. Furthermore, vaccinations and disease outbreak control were also developed and mainstreamed. The fourth era of PH became known as **Preventive Medicine** from the 1940s to 1960s, which focused on high-risk groups in the effort to prevent and cure diseases. Several actions were implemented during this era including specific disease vector intervention, the identification of microbes, improving medical care for high-risk groups, and the foundation of modern clinical pathology. The fifth era was called **Primary Health Care** from the 1970s to 1980s, which emphasized providing health for all. Preventive health care was the main focus of this era, and health equity, community participation, accessibility of service and the social determinants of health were at its core. The last era is **Health Promotion,** which has been implemented from the 1990s and is still in action today. It highlights the advocacy of health and the optimal health of individuals and the community. The key action of this era was stated in the Ottawa Charter: to "build healthy public policy, create a supportive environment, strengthen community action, develop personal skills, and reorient health services."

The current public health era is also known as the **New Public Health** era. Many changes have led to these evolutions, which made way for the further development of public health (Tulchinsky & Varavikova, 2000). Changes include the shifting of religion as a central organizing power; the progression of development cantered in rural, urban, and regional societies; the growth of industries, transportation technology; escalating trade and commerce in the multinational economic system; and the recognition that the health of an individual is not individual but rather global in scale. In the last half-century, the main cause of mortality and morbidity in developed countries have been chronic diseases, and this is also increasing in developing countries. Scientific research has claimed that the cause of chronic conditions is an infectious agent and their prevention is to cure the infection. This is, however, no longer the case and chronic disease has become the centre of epidemiological transition because infectious diseases have largely been under control.

2.1.2 Disease Prevention and Health Promotion in Public Health

Disease prevention and health promotion sometimes overlap in public health because they share many goals in common. Disease prevention focuses on minimizing the risk of the diseases and health promotion is concerned with the intersectoral actions in addressing the social determinants of health (WHO, 2018a). As preventive measures are important in reducing disease mortality, it has been decided that disease prevention is a key public health objective in the overall reduction of disease worldwide. WHO (2018, p.1) defines diseases prevention as "*specific, population-based and individual-based interventions for primary and secondary (early detection) prevention, aiming to minimize the burden of diseases and associated risk factors*."

Several methods have been identified in order to achieve the goal and deal with the determinants of health (Tulchinsky & Varavikova, 2000). First, health promotion allows individuals to have control and improve their health (WHO, 2018b). Health promotion seeks to foster national, community, and individual knowledge, attitudes, practices, policies, and standards that are conducive to good health. At the same time, it seeks to promote legislative, social and environmental conditions, promote knowledge and practices for self-care to reduce risk, and take part in creating more healthful environments. Secondly, health promotion is concerned with the actions to reduce and eliminate the risk and potential consequences of health. Thirdly, three layers of preventions (primary, secondary, and tertiary) that deal with disease prevention include creating and using vaccinations to address the root cause of the diseases, making early diagnoses and supplying appropriate treatment for diseases to limit their progress, and also addressing action for stopping the development of diseases in the first place and further complications.

WHO (2018, p. 1) recognizes health promotion as "*the process of empowering people to increase control over their health and its determinants through health literacy efforts and multisectoral action to increase healthy behaviours*." The concept of health promotion could help the global health community to deal with various diseases that neither have a medical cure nor a preventive measure yet, for example, HIV/AIDS. A method to control such kinds of diseases are education and changes to lifestyle (Tulchinsky & Varavikova, 2000), which includes addressing behaviour risk factors such as tobacco use, obesity, diet, physical inactivity, mental health, injury prevention, drug abuse control, alcohol control, health behaviours relating to HIV, and sexual health practices (WHO, 2018a).

Behaviour risk factors differ between and within societies which are highly affected by social and economic conditions as well as the psychological needs of individuals within a population (Tulchinsky & Varavikova, 2000). For example, factors like migration, unemployment, drastic social and political change, and binge drinking have been shown to have a negative effect on cardiovascular diseases. On the other hand, other factors such as having a healthy lifestyle, religiosity, and family support systems show a protective effect on cardiovascular diseases. Furthermore, disease distribution within a society are also affected by social conditions (Tulchinsky & Varavikova, 2000). Several problems such as tuberculosis, homelessness, drug abuse, and HIV infections have re-emerged as significant public health problems in urban areas of the USA and Western Europe, largely owing to poverty rates and alienation from society. Similarly, tuberculosis also increased in Eastern Europe in the early 1990s because there was a large-scale prisoner release in certain areas.

2.1.3 Components of Public Health Implementation

The effectiveness of public health implementation is influenced by many components including a political commitment from governments that can be seen through the laws and regulations about public health, the partnerships and collaboration between stakeholders, and the implementation of programs that could manage the problem effectively (Frieden, 2014).

2.1.3.1. The Laws and Regulations of Public Health

Laws and regulations have been essential to the efficacy of public health as they provide powerful tools in tackling health concerns and also promoting health at local, national, and global levels (Burris, Berman, Penn, & Holiday, 2018; Hartsfield, Moulton, & McKie, 2007; WHO, 2017). The development of public health laws and regulations are an ongoing and dynamic process that allow governments to be responsible for enforcing changes within a community, such as changing the physical environment, shaping the social

environment, influencing the social determinants of health, and structuring public health systems (Burris et al., 2018; WHO, 2017).

2.1.3.2. The Organizational Structure and Stakeholders of Public Health

Governance in the health sector is critical as developed governance structures have positive impacts upon health outcomes (Ciccone, Vian, Maurer, & Bradley, 2014; Marks, Cave, & Hunter, 2010). Governments play a fundamental role as initiators and also leaders for health development, particularly in terms of their partnership with local and global stakeholders such as NGOs, private sectors and community organizations. Together, the government and stakeholders work to achieve health goals to improve health by minimizing health inequalities and responding to community needs (Adshead & Thorpe, 2007; WHO, 2006).

Moreover, the democratisation and decentralisation of health sectors allow for local governments and stakeholders to effectively manage the health sectors within their area, and at the same time, generate more engagement and participation in the community (Saltman, Bankauskaite, & Vrangbaek, 2007; WHO, 2006). However, at the same time, it also affects the configuration of the health systems such as the long-term impacts upon the capacity to build more integrated care networks (Saltman & Bankauskaite, 2007; WHO, 2006).

2.1.3.3. The Implementation of Public Health

Participation in public health programs is recognized to be a key component to improving health by many scholars (for example, see Baatiema, Skovdal, Rifkin, & Campbell, 2013; Bath & Wakerman, 2015; Kilewo & Frumence, 2015; Maciel Filho & Araújo Júnior, 2002; Meier, Pardue, & London, 2012; Ndegwa, Mavole, & Muhingi, 2017; Singh et al., 2017). The participation of stakeholders such as government officials from the national to local level and non-government actors in the implementation of health programs can generate benefits at both the community and individual level because participation facilitates the shaping of health programs to match community needs and expectations as well as improving individual beliefs about the government in general (Meier et al., 2012).

2.2 Disaster Risk Reduction

2.2.1 Shifting Paradigms in DRR: From a Hazard to Vulnerability Paradigm

Under the dominant view, disasters are considered as an outcome of a hazardous natural phenomenon which causes potential damage to humans and society (J. Gaillard, 2019; Hewitt, 1983). Furthermore, the view emphasizes that natural hazards are so closely related to the extreme (in magnitude) and rare (in time) that

they impinge upon a community's capacity to cope. This means that hazards have been seen to be extraneous (J. C. Gaillard, 2017). This view is known as the hazard paradigm. From this perspective, disasters are out of the social fabric of daily life because of their extremeness which has been expressed in various terms such as extraordinary, uncontrollable, incredible, unpredictable and uncertain-phenomena, that cause unexpected, unscheduled and unanticipated damage (J. C. Gaillard, 2010a, 2017; Hewitt, 1983).

The hazard paradigm emerged in the prehistoric era, where disaster was seen as an 'act of God' or 'misfortune'. It was also termed the 'engineering and behaviour' paradigm (Hewitt, 1983; Smith & Petley, 2009). Within this, the focus of research and analysis was on physical characteristics (for example, earthquakes and typhoons) and the physical conditions of the hazard, which made the subfields of engineering and science, such as earth science, civil engineering, scientific weather forecasting, geophysical monitoring, and land use planning, the main actors in addressing hazards associated with disasters (Hewitt, 1983; Smith & Petley, 2009; Ton, 2013). In the early 1940s, the work of Gilbert F. White and his students considered that individual decisions to stay within hazard-prone areas contributed with the hazards themselves in causing disasters, which then became known as the 'behaviour paradigm' (Cutter, Emrich, Webb, & Morath, 2009; Smith & Petley, 2009). This view stimulated a blended approach in addressing disaster at that times included earth scientists and engineers and added the voices of social scientists who began to explore disaster reduction through human adjustment (Smith & Petley, 2009). However, it took three decades for researchers to question and explore the concept of vulnerability and see the importance of the human dimensions of disaster (Cutter et al., 2009; Smith & Petley, 2009).

Many scholars in the field of disasters studies have since criticized the hazard paradigm because of its incompatibility with the needs of people within disaster contexts (J. C. Gaillard, 2010a, 2017; Hewitt, 1983; Smith & Petley, 2009; Wisner et al., 2004). Furthermore, the paradigm also claims to be ineffective in terms of reducing disaster risk and is unsuccessful in addressing the causes of disaster because of several reasons as follows (Ton, 2013). 1/ Initially, the hazard paradigm was merely concerned with the physical process of disasters and ignored the socio-economic and political process that were indirectly involved in the process of a disaster; 2/ Disasters are commonly seen as a static process rather than a dynamic one; and 3/ Top-down approaches are commonly seen in addressing disasters in which all the initiation and solutions come from the top (that is, from governments and experts), and local communities are merely seen as victims. The hazard paradigm has also been claimed to be extremely deterministic, Malthusian, and technocratic in its ability to take into account the underlying social processes that cause vulnerability for people (J. C. Gaillard, 2017).

The vulnerability paradigm on the other hand was introduced as the reaction to the previous view. This began in the 1970s and burgeoned in the 1980s (Wisner & Luce, 1993; Gaillard, 2010; Wisner et al., 2004). Vulnerability is commonly defined as "being prone to or susceptible to damage and injury" (Wisner et al., 2004, p.11), which emphasizes that a society's conditions highly influence a natural hazard to become a disaster (Cannon, 1994). Vulnerability can be classified into three different components, which include: **resilience** to likelihood systems and the capacity to cope with the impact of disaster such as economic recovery; a **health** component that concerns the condition of individuals or medical operations in dealing with various social measures; and the **preparedness** of individuals in terms of how people can protect themselves or community (Cannon, 1994). However, the conceptualization of vulnerability has been much more diverse and complex from discipline to discipline in the years following (Füssel, 2007; Ton, 2013).

Vulnerability involves a situation in which a human's life, livelihood, property and/or asset is at risk because of one or multiple extreme events within a society (Wisner et al., 2004). Furthermore, vulnerability intends to consider disaster as part of everyday life in which there is a sharing of power and resources within society. Disaster vulnerability, in many ways, is built into the culture, social, economic, and political aspects of every community (J. Gaillard, 2019). As a result, people's vulnerability to natural hazards is varied within a society, which means that during a disaster, there are always people who survive, affected, lost or suffer more compared to other people. These conditions are highly related to class, occupation, caste, ethnicity, gender, disability and health status, age and immigration status, and the nature of the social networks (Wisner et al., 2004). In other words, people are more vulnerable because there is a disproportionate access to resources and means of protection in society due to different power relations and opportunities across a society (J. C. Gaillard, 2017).

Wisner et al., (2004) and Wisner, Gaillard, & Kelman, (2012) popularized a framework called the Pressure and Release Model (PAR), which seeks to explain how the progression of vulnerability travels from the root cause of vulnerability, through dynamic pressures, and finally to a state in which livelihoods are fragile and people are forced to inhabit unsafe locations (see figure 2-1). In this framework, the root causes of vulnerability consist of factors that are embedded within the individual such as ideologies (for example, nationalism, militarism, neoliberalism, and consumerism), within societies such as social and economic structures (for example, the distribution of power, wealth, and resources), and the progress of past social conditioning such as history and culture (for example, a country's colonial and post-colonial heritage, tradition and religions). Moreover, there are factors that have forced vulnerabilities within societies to increase such as societal deficiencies (for example, the lack of local institutional support, training and

scientific knowledge, local investment, local markets, media freedom, and ethical standards in public life). Societies continue to be more vulnerable because their livelihoods are fragile, and they live within a hazard-prone area. Furthermore, Wisner et al., (2012) also investigated the nature of vulnerability using a model called the triangle of vulnerability, which emphasized the role of access and marginalization in terms of people's vulnerability (see figure 2-2). It is argued that marginalization is caused by lack of access to the resources that people require in their everyday life and also during times of disaster.

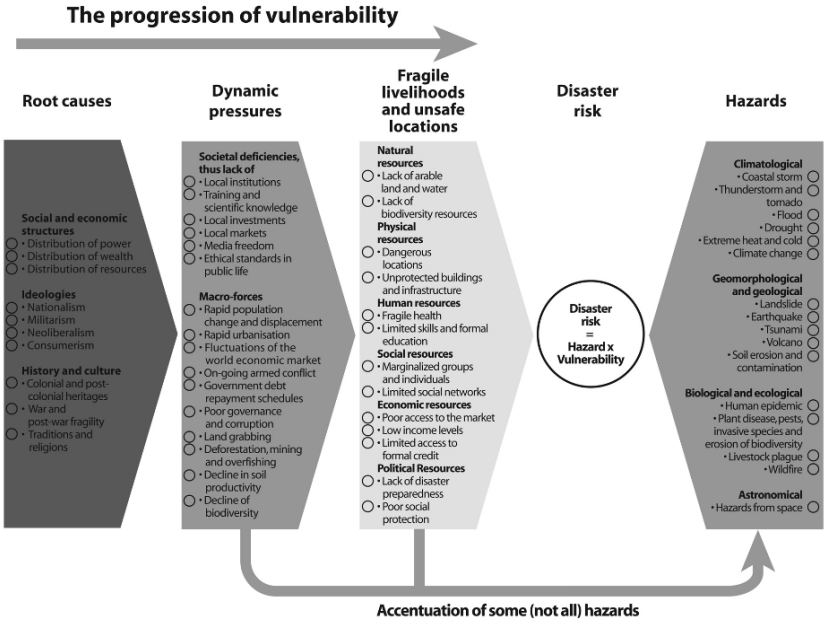

Figure 2-1: The progression of vulnerability (Wisner et al., 2012)

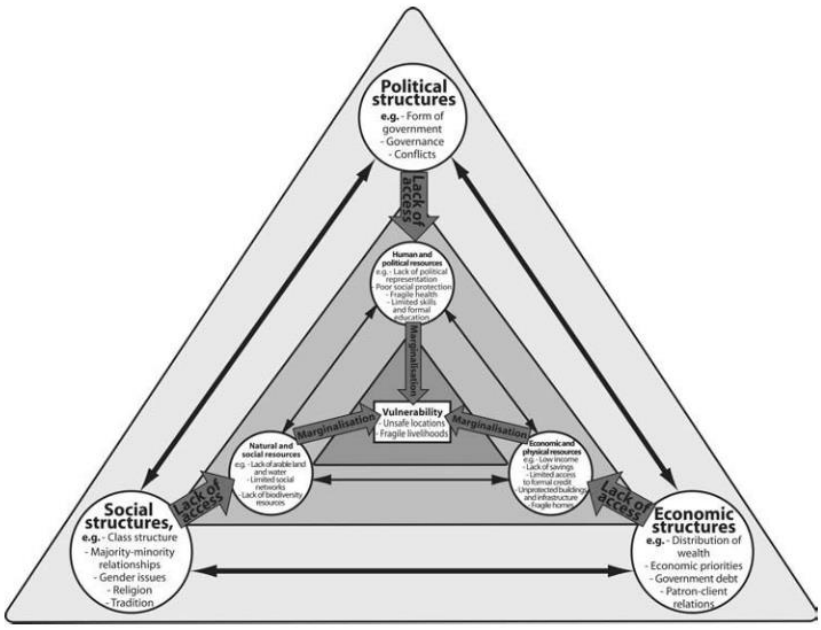

Figure 2-2: The triangle of vulnerability (Wisner et al., 2012)

2.2.2 DRR for sustainable livelihood

The concept of sustainable livelihoods in DRR was adopted in the PAR whereas the progression of vulnerability ended when people lived in a 'fragile livelihood' or unsafe location (see figure 2-1) (Wisner et al., 2012). People's livelihoods are significantly influenced by the capacity that people have to cope when disasters occur (J. C. Gaillard et al., 2009). If people have fragile livelihoods, they tend to be unable to cope during crises because they lack the access and resources to live their lives and face disaster, and vice versa. This condition leads to marginalization (J. C. Gaillard et al., 2009). In many cases, their conditions force marginalized people to stay and live in unsafe locations. For example, some fishermen live by the coast because they make their living there despite the risks of hazards they may encounter. The inability of marginalized people to cope with disasters then aggravates their conditions even more, which can leave them in a perpetual cycle of increasing vulnerability (Wisner et al., 2012).

2.2.3 Components of Disaster Risk Reduction Implementation

DRR is defined as 'the development and application of policies, strategies and practices to reduce vulnerabilities and disaster risks throughout society' (Twigg, 2015, p.6). To be able to fully implement DRR, a country should have an appropriate national policy and legislative framework, administrative structures and systems that include human, and technical capacities, at all government levels.

2.2.3.1. The Laws and Regulations of Disaster Risk Reduction

Laws and regulations are fundamental for DRR to reduce the risk of disasters (IFRC & UNDP, 2015; Twigg, 2015). This is why one of the priorities of the Hyogo Framework For Action is to ensure that DRR remains a priority in all countries (UNISDR, 2010). Furthermore, the Sendai Framework for Disaster Risk Reduction also works on "strengthening disaster risk governance to manage disaster risk" (UNISDR, 2015, p.17). Twigg (2015) and Handmer, Loh, & Choong (2007) state that laws and regulations should be the governments' responsibility because a government is usually responsible for the safety and security of its' citizens. Additionally, governments also have the mandate, resources, and capacity to generate nation-wide initiatives to implement DRR within a country. Many actors should be consulted during the development laws and regulation such as in ministries, local governments, humanitarian NGOs, community organizations, and private sectors (Pelling & Holloway, 2006). Moreover, laws and regulations also provide a political commitment from the ones with power. However, at the same time, people in the community as well as community organizations could also significantly influence the approaches taken by the government in the implementation of DRR (Twigg, 2015).

Laws and regulations are argued to be influential tools to generate social change because people and their representatives can participate and express their voices and concerns (Aronsson-Storrier & da Costa, 2017) and be involved in the decision making process (Twigg, 2015). In order to have better natural hazard adaptation, local knowledge and local community support in terms of informing risk and decision-making must be considered (IRFC & UNDP, 2014). Furthermore, a decentralization of DRR laws and regulations allows local governments to manage their areas and provide more opportunities for the involvement of people in the community, to be involved in the development of the legal structures governing their communities (Messer, 2003).

2.2.3.2. Organization structure and Stakeholders of Disaster Risk Reduction

The formation and function of the national and local government institutions that address disaster risk significantly influence the vulnerability of people to disasters, particularly in less affluent countries (Bang, 2013). A strong governmental institution could facilitate the process of integrating DRR into a development agenda. Moreover, governments have an essential role in creating an environment where people could be empowered to reduce the risk of an available natural hazard (UNISDR, 2004). Furthermore, a multi-disciplinary collaboration and partnership between stakeholders such as the national government, local government, ministries, NGOs, private sectors, community organizations and people in the community is required to fully implement DRR in a country. Collaboration and partnership among stakeholders is believed to be able to escalate the impact of certain initiatives, which could be achieved with mutual understanding, respect, and facilitated dialogue (Cadag & Gaillard, 2012; Twigg, 2015).

UNISDR (2004) emphasized the needs of a decentralized and institutionalized DRR model implementation at the local level through communication, information, partnership, coordination, decision-making, and control of resources (Bang, 2013; Bollin, 2003). Decentralization is considered to be a way to ensure that specific measures are being taken to address certain disaster issues in local contexts and the roles of diverse actors could complement with each other (Bollin, 2003). It has both positive and negative impacts on risk reduction (Twigg, 2015). On the one hand, decentralization could facilitate the mainstreaming of DRR into government structure, repair interactions between communities and NGOs with governments, involve local communities in more meaningful ways, and also, generate the improvement of a local government's capacities and capabilities in dealing with disaster. On the other hand, the decentralization of DRR may also allow the national government to neglect their responsibility and delegate everything to local government. Local

governments then do not have the political power to address a range of issues that put people at risk such as the political, social and economic dimensions of everyday life.

2.2.3.3. The Implementation of Disaster Risk Reduction

DRR practice should use a risk management approach because it directly addresses the root cause of *risk*, which meets at a point where the interaction between hazard, community and environment occurs. Additionally, disasters should be seen as long-term problems and a DRR approach should be integrated into long-term development planning to minimise underlying socio-economic vulnerabilities, protect hazard intervention, and make sure that development policy does not generate further hazards (Twigg, 2015). To fully implement a DRR program, appropriate laws, policies, institutional arrangements, stakeholders, and resources should be in place (UNISDR, 2004). Furthermore, the participation of people in a community will be the key in risk management because they are at the front line of those affected by disaster and are also the first to respond using their expertise and local knowledge (Delica-Willison & Willison, 2013; J. C. Gaillard, 2010a; Twigg, 2015). Community involvement and active participation in DRR can be challenging, and a facilitator may be needed to initiate the process for either the government, NGOs, or the community members themselves. Building and developing the capacity of the community should be the main objective of DRR programs because they allow them to independently assess potential problems, find and implement appropriate solutions, support each other, plan and implement initiative, and take advice from stakeholders when necessary (Twigg, 2015).

2.3 The Research Framework: Similarities and Divergences

To be able to understand the bigger picture of how PH or DRR are implemented in a country, a theoretical framework needs to be established. Based on the literature review, a framework for this study was created (see figure 2-3). It includes the recognition of several fundamental aspects including the relevant laws and regulations, government organizations and involved stakeholders, and current implementation efforts of both PH or DRR on the ground in Indonesia.

This framework will be used within the study to understand how PH and DRR is implemented on the ground. Understanding these three aspects of law and regulation, government organizations and stakeholders, and current implementation efforts will reveal that there are similarities and divergences that may give important insight that could be shared between PH and DRR.

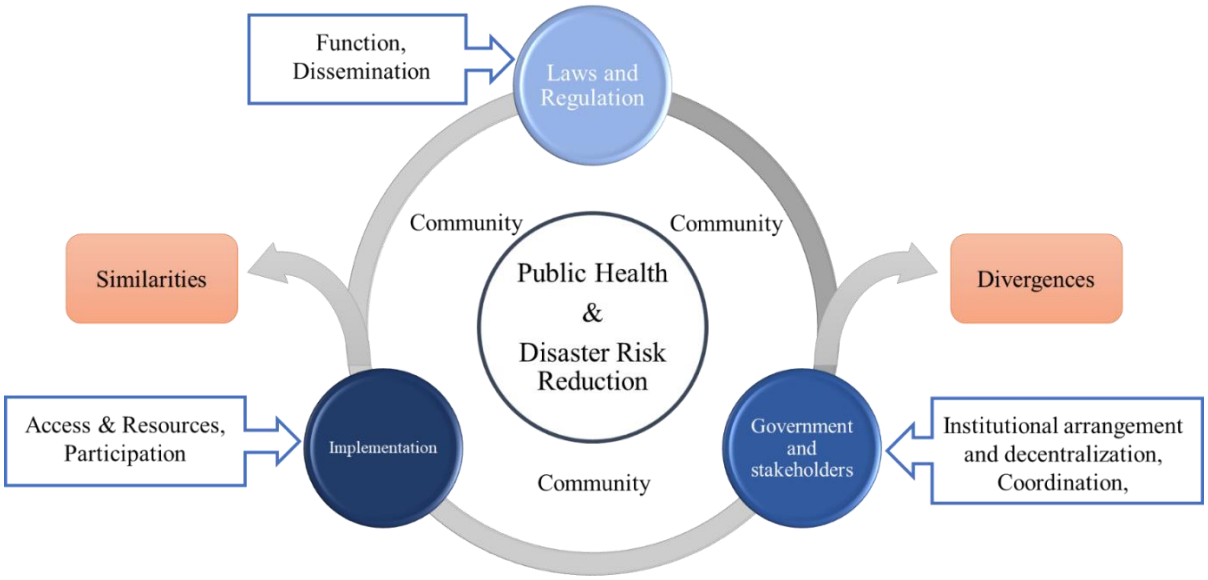

Figure 2-3: The Research Framework

Chapter 3 – Contextual Setting

3.1 An Overview of Health and Disaster Trends in Indonesia

Indonesia, like many other parts of the world, is vulnerable to disease outbreak. The available data from the Ministry of Health in Indonesia reported that the top three diseases in 2018 were diarrheal with more than 4 million occurring cases, followed by tuberculosis and pneumonia at 511,873 and 478,078 cases (Ministry of Health, 2019). The occurrence of diseases in Indonesia has, however, decreased from decades ago. The country data on health from the World Bank shows that the death rate due to health issues relating to infectious disease in Indonesia significantly decreased from 18 in 1960 to 8 in 2017 per 1000 people (World Bank, 2019a). There was also a significant drop in the infant mortality rate from 148.5 in 1960 to 21.4 in 2017 per 1,000 live births in Indonesia (World Bank, 2019b).

Based on the basic health research of the community at a national level that was conducted by the research and development department of the Ministry of Health, it was found to be a significant decrease in the incident rate of several diseases within an eleven-year period from 2007 and 2018 (see table 3-1). Rates of lower respiratory disease fell considerably from 25.5% in 2007 to 4.4% in 2018. Diarrheal diseases also levelled down from 9% to 6.8% in the same period. The case of malaria and pneumonia also decreased slightly from 2.85% and 2.13% in 2007 to 0.4% and 2% in 2018 respectively. The number of tuberculosis and hepatitis patients also fell from 0.9% and 0.6 % in 2007 to both 0.4% in 2018.

Diseases	2007 (%)	2018 (%)
Lower respiratory infections	25.5	4.4
Diarrheal	9	6.8
Malaria	2.85	0.4
Pneumonia	2.13	2
Tuberculosis	0.9	0.4
Hepatitis	0.6	0.4

Table 3-1: Disease statistics within the Indonesian population

At the same time, Indonesia is also highly vulnerable to natural hazards such as geophysical hazards and hydro-meteorological hazards that compound existing vulnerabilities such as population growth, unequal economic development, urbanization, and negligence of social and environmental factors in the development process (Djalante, Garschagen, Thomalla, & Shaw, 2017). It has been recorded that more than a thousand disasters have occurred in various areas and islands of Indonesia since 2018, which have resulted in the killing, injuring, and displacement of more than a million people (BNPB, 2018). The most recent disastrous

events were the eruption of Mount Agung in Bali, the earthquake in Lombok, the earthquake and tsunami in Palu and Donggala, Central Sulawesi, the Krakatau eruption and the tsunami in Lampung.

The occurrence of disastrous events in Indonesia fluctuates year by year. There were more than ten thousand disaster events in Indonesia over the three decades from 1982 to 2012 (BNPB, 2013). Moreover, more than a thousand events occurred over the last ten years from 2009 to 2018 with the highest number of disasters in the last two years at more than 2300 events in 2016 and just below 3000 in 2017 (BNPB, 2018). The types of natural hazards associated with disasters vary from floods, landslides, coastal inundations, cyclones, droughts, forest fires, earthquakes, tsunami, and volcanic eruptions in which floods, landslides, and cyclones have shared a larger portion of the events year by year in the last four decades (BNPB, 2013, 2018).

3.2 Public Health in Indonesia

Public health efforts in Indonesia during the era of colonialism was independently made by individual doctors in many places in Indonesia based on whatever problems prevailed at that time. There was no specific design or regulation of public health measures at that time. Prevention efforts were initiated by young doctors from Java to address a measles outbreak in 1804, which developed into the establishment of schools for doctors and nurses in several places in Indonesia (Ryadi, 1982). After Indonesian independence in 1945, the effort to maintain independence in the first five years ignored prevention efforts for several diseases which resulted in disease epidemics such as measles. In 1950, Indonesia was admitted as a member of WHO, which positively influenced public health development in Indonesia and lead to the enactment of the first health law in 1960. It also led to a realization that public health efforts were not only the responsibility of national government, but also the involvement of local government regarding health decentralization (Ryadi, 1982).

A community healthcare centre (in Bahasa Pelayanan Kesehatan Masyarakat/Puskemas) was established in 1968, which aimed to provide preventive and curative efforts for the local community. In just two years, a community healthcare centre was made available in every subdistrict in Indonesia (Mahendradhata et al., 2017). At the same time, a national health development plan was developed, which focused to the development of a long-term design process that aimed to cover all areas in Indonesia as well as the implementation of short-term activities to support the longer-term plan. Moreover, the effort to integrate available systems also resulted in an Integrated Health Service stage (Ryadi, 1982).

Indonesia was severely affected during the Asian financial crisis of 1998, which led to a new regime of reformation. The health system was reorganized to allow for the decentralization of the government in 1999. Within this regulation reform, local governments were responsible for independently managing their own areas. At the same time, the new regulations also created a fragmentation and disconnection of authority lines between the Ministry of Health (MoH), Provincial Public Office (PHO) and District Health Office (DHO) (Mahendradhata et al., 2017).

The organization and development of public health efforts such as prevention and promotion activities were led by the MoH with the shared delivery responsibility of the PHO and DHO. The effort was usually organized in specialized programs or individual health facilities through the community healthcare centre and their networks. The most recent prevention and promotion activities, called the Healthy Indonesia Program, were launched in 2015, and aimed to promote healthy behaviours, healthy environments, provide quality health services in order to reach the highest health status. The program focused on the paradigm of health, strengthening primary health care and national health insurance (Mahendradhata et al., 2017).

3.3 Disaster Risk Reduction in Indonesia

Significant efforts have been made to reduce and address disasters in Indonesia, but the 2004 Indian Ocean tsunami significantly shifted the disaster paradigm, particularly relating to the way risk has been managed and reduced (Djalante et al., 2017). It was claimed that the changes in presidential leadership and the consequent social and political changes that lead to the establishment of National Disaster Management Agency (in Bahasa Badan Nasional Penanggulangan Bencana/BNPB) were significantly responsible for the shift of approach taken to manage disaster in Indonesia (Djalante & Garschagen, 2017a).

Many disaster events that have occurred in Indonesia have been recorded by EM-DAT since 1900. The response of the colonial government in Indonesia to address disasters, especially between 1840 and 1920, were found to be mostly ad-hoc and with minimal action (Djalante & Garschagen, 2017a). After the Indonesian Independence Day in 1945, countless disasters and wars happened from time to time. The first agency created was named the *Office for War Victims Families* in 1945, which then transformed six times in organizational structure and function until the establishment of the BNPB and smaller local disaster management agencies (in Bahasa, Badan Penaggulangan Bencana Daerah/ BPBD) in 2008 (Djalante, Thomalla, Sinapoy, & Carnegie, 2012). However, the Indian Ocean tsunami in late December 2004 shifted disaster risk reduction (DRR) not only in Indonesia but also globally. After 2004, a new era of DRR in Indonesia was formed, where the involvement of numerous stakeholders, their accountability for the

management of disasters, and the overall enhancement of resilience at a community level was called for (Djalante et al., 2012). A new law of disaster management 24/2007 was enacted as a fundamental change of DRR in Indonesia, which also recognised that disasters should not only be addressed by the national government, but also by the local government that had been influenced by the implementation of decentralization in Indonesia greatly. Upon the establishment of the BNPB and BPBD, they were mandated and accounted to coordinate, plan, and implement disaster risk management (DRM) and disaster risk reduction (DRR) in Indonesia. Several documents and regulations were produced including DRM guidelines, the National Action Plan for DRR, regulations to address the formation of BNPB and BPBD, the assigned roles of NGOs, the role of vulnerable communities, and financial for DRR (Djalante & Garschagen, 2017a; Djalante et al., 2012).

Since then, the implementation of DRR in Indonesia has been gradually progressed nationally as well as regionally in Southeast Asia. The establishment of ASEAN Coordination for Humanitarian Assistance in Jakarta and the conducting of the Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) in 2012 have all been flow on effects of the shift in the disaster paradigm. It helps in developing and strengthening the capacity and capability of Indonesia to respond to disaster events and also establishes a system to decrease the vulnerability by reducing the risk of disasters (Djalante & Garschagen, 2017a).

Chapter 4 – Methodology

4.1 The Research Framework

Figure 4-1: The Research Framework

Based on the literature reviewed in Chapter 2, the above research framework has been developed (see figure 4-1). This framework illustrates the important aspects of the adoption of PH and DRR within a country to address available public health problems and disaster issues in a community. First, an appropriate legal framework should be enacted to regulate the whole adoption process from planning to implementation and evaluation. Moreover, solid and strong government organizations should collaborate with a range of multidisciplinary stakeholders to execute every task. Local people and community should also be actively involved and participate in the created programs. Lastly, an understanding of the similarities and divergences between PH and DRR should be acknowledged. This opens up an opportunity to learn from each field, which can lead to better functioning PH and DRR overall.

4.2 A Case Study Approach

A case study approach allows the researcher to explore real-life phenomena within a specific study context, such as a small geographic area with a small number of participants (Zainal, 2007). In this research, Indonesia was chosen as the case study area. It was then narrowed down to Jakarta as the capital city of Indonesia and a place that is greatly affected by public health and disaster issues. The specific case study sites were chosen in collaboration with stakeholders highlighted by a local disaster management agency officer in Jakarta. Several areas that are highly impacted by yearly floods were then selected such as Bidara

Cina, Muara Angke, Pejaten Timur, Pasar Minggu, Tongkol Muara and several other areas. Due to time constraints, only accessible and fast responding respondents were included in the study.

4.3 Data Collection Methods and Data Analysis

Several different methods were used to collect data from various actors who were directly involved or concerned with this study.

4.3.1 Document Review

The secondary data and review of literature in this research defines the key objectives of the study at the beginning of the study. The information was from various resources, including journals, articles, books, documents, and other sources from the internet. This review aims to provide a bigger picture of the research objectives that contribute to the selection of interview participants and the development of the research framework and questions. The topic of the review consists of public health and its determinants, disasters and their determinants, the context of public health and disaster in Indonesia, and the similarities and divergences of public health and disaster risk reduction in Indonesia.

4.3.2 Interviews

Key stakeholders involved with my topic were identified during the process of writing my literature review and context chapters. The interviews were conducted with government officials at a national and Jakarta level for both PH and DRR. As for the non-governmental side, I also interviewed an international organization called JICA, several local NGOs and community groups, as well as several community members in Jakarta (see table 4-1). Various methods were used to approach and get in touch with each interviewee. A classmate who works at BNPB facilitated my contact with BNPB, BPBD, the international organization and the several NGOs. For the PH interviews, I directly submitted a proposal by following the research permit procedures from each institution. The interview sessions with community members were facilitated by community groups within each area. The interviews were conducted using guideline questions that had been prepared earlier. Follow-up questions were then asked based on the answer of each interviewee to find out more about certain issues or clarify some points during the interview process.

From the governmental side, the Ministry of Health and Jakarta health agency were interviewed to cover the PH topic at the national and Jakarta level respectively. The more local context of PH information was provided by the Primary Health Care Service official of the area. Interviews with PH government officials aimed to get the bigger picture of public health in Indonesia as well as the local context in Jakarta in terms of

the regulatory framework, stakeholders' involvement, and PH implementation. Moreover, interviews with primary health care service officials intended to get a more specific understanding on how PH was practised in the community. Additionally, the DRR topic was generated from BNPB at a national level and BPBD Jakarta at a local level, which aimed to find out about the overview of DRR at a national and local level in Jakarta. From the non-governmental side, the international organization JICA, local NGOs, and community groups were interviewed to give their point of view about PH and DRR in Indonesia based on their own experiences on the ground. Finally, community members were also interviewed to get an understanding of their hands-on experiences of the efficacy and success of PH and DRR programs in action in Indonesia currently.

Government	National	The Ministry of Health: - diseases prevention department - health promotion department - health crisis centre
		The Disaster Management Agency (BNPB):
	Local (Jakarta)	The Povincial Health Office: - diseases prevention department - health promotion department The primary health care service in North Jakarta
		The Local Disaster Management Agency (BPBD Jakarta)
Non-government	International Organization	JICA
	NGOs	Jakarta Red Cross
		Humanitarian Forum Indonesia (HFI)
		Wahana Visi Indonesia
		Dompet Duafha
		PKPU
		Ciliwung Merdeka
	Community Group	Ciliwung Institute
		Mat Peci
	Community Members	Community members in Muara Angke, Pasar Minggu, Pejaten Timur, Bidara Cina, dan Tongkol Muara

Table 4-1: List of Interviewees

4.3.3 Focus Group Discussions (FDGs)

The focus group discussions (FGDs) in this research were conducted to elicit information as well as have a discussion about PH and DRR with different configurations of people within the Jakarta community. There were two different FDGs conducted in Bidara Cina, East Jakarta and Muara Angke, North Jakarta. The number of participants ranged from 8 to 15 people. Voice recorders and notebooks were used to document the information during the FGDs process. In Bidara Cina, the FGD was conducted in a neighbourhood office. The participants were a diverse representation of the community; from the head of neighbourhood groups, the committee officials of neighbourhood groups, voluntary health agents, middle aged men and women, and elderly men and women. Their jobs ranged from being housewives, traders, drivers and retired. In Muara Angke, the FGD was conducted at a community centre. The FGD was integrated with a sharing session about health and disaster risk within the community. During the session, the participants, who were mostly women, shared their experiences being at the frontline of community action in issues concerning PH and DRR. Due to Muara Angke's location near the sea, most male participants worked as fishermen and female participants worked as traders, housewives, and small business owners.

4.3.4 Data Analysis

Data obtained from interviews and FGDs were synthesised. It was then grouped and the coded to find the key information needed for further analysis. The group's data was then compared and combined with each other's for PH and DRR in three different contexts, including regulatory frameworks, stakeholder involvement and project implementation.

4.4 Ethical Considerations

Based on the guidelines of The University of Auckland Human Participants Ethics Committee (UAHPEC), potential participants of the study were provided Participant Information Sheets (PISs) (see Appendix One) and Consent Form (CFs) (see Appendix Two) prior to the interview and FGD process in order to consider their consented participation in the study. The PIS provided detailed information about the study, such as the research purpose, the significance of the study, the expectations of the study, the time expectations for each activity, and the rights of the participant. Participants could ask further questions regarding any issues of the study if they wished. The participation of the study was voluntary, meaning there was no intervention on the participant's decision to participate in the study or not. There was also no reward or compensation provided for participants for their participation in the study. If the participant wished to participate in the study, their consent was obtained through their signing of the CF. Moreover, participant and information confidentiality were protected in this study. However, the confidentiality of participants and the information in the FGDs

could not be guaranteed because of the nature of FGDs activities. This information was provided within the PIS to the participant before the FGDs were conducted.

Chapter 5 – Research Findings

This chapter illustrates the main findings of the research for both public health and disaster risk reduction aspects. The focus of the investigation was on the regulations, the organisation structure, the stakeholders, and program implementation.

5.1 Public Health

5.1.1 The Regulations of Public Health

There are several regulations that manage PH in Indonesia. Within the 1945 Constitution and the foundational philosophical theory of Indonesia (Pancasila), health is one of the primary national goals to be achieved. The Health Act has been amended twice since it was first issued (see table 5-1). The first Act concerning health was publicized in 1960. The first revision was done in 1992 before further amendments were made to the currently used version in 2009. The cure and prevention of disease has been an emphasised strategy of the Indonesian health sector since the 1960s. Promotion efforts through disseminating information and awareness raising efforts were added to the first revision of the Act in 1992. Furthermore, a new strategy about risk avoidance and risk reduction efforts were implemented to address the negative effects of health. These are included in the currently used Act.

Regulation	Description	Issued	Regulations	Description
Acts (Undang-Undang)	Formulated by House of Representatives with the agreement of the president	First issued	Act No. 9/1960 about the essential of health (Undang-undang No. 9/1960 tentang Pokok-pokok Kesehatan)	Focus on addressing diseases and prevention
		First amendment	Act No. 23/1992 about health (Undang-undang No. 23/1992 tentang Kesehatan)	The promotion effort through disseminating information and awareness raising effort were added
		Second amendment and currently used	Act No. 36/2009 about health (Undang-undang No. 36/2009 tentang Kesehatan)	A new strategy about risk avoidance and risk reduction effort

Table 5-1: The amendment tracks of Health Act in Indonesia

Several formal regulations have since been issued to implement the above Act (see table 5-2). A government regulation about infectious disease epidemics were issued in 1991 to address health problems at the time. Furthermore, a presidential regulation about the National Health System was issued in 2012 to guide any related governmental bodies such as the national government, the health minister, and any local government

and health officials. Prevention and promotion efforts also highlighted the focal points within this regulation. Additionally, there were also some informal regulations issued to guide the implementation of disease prevention and promotion that covered several specific topics such as epidemic early warning systems, primary healthcare centre (puskesmas), vector management, the type of infectious disease that potentially lead to epidemics, health improvement and diseases prevention efforts, and the implementation of health promotion in the hospital environment.

At the provincial level in DKI Jakarta Province, an informal regulation relating to health named the Governor Regulation No. 115/2015 was issued by DKI Jakarta Governor to be implemented within the DKI Jakarta Provincial area. It was nicknamed the 'Knock the Door, Provide Service with Health' program (see table 5-3). The program aimed to change people's mindsets about healthy lives, which emphasised some principles such as prevention, healthy paradigms, regional responsibility, teamwork, household doctors, residency basis, and community independence.

The interview with The Ministry of Health official indicated that they are aware of the importance of regulation as well as the guiding of health program delivery. They claimed to have adequate regulations to support the implementation of health programs. The current health promotion and prevention program is entitled Indonesia Community Movement (Gerakan Masyarakat Indonesia/ GERMAS) and aims to tackle the three primary health burdens of Indonesia – that is, infectious disease, non-infectious disease and the reoccurrence of resolved health problems. There are several regulations that have been formulated within different government levels to support this program. These include the Presidential Instruction No 1/2017 about community movement to have a healthy life, how various ministries have their own regulations about GERMAS within their own areas, how the governor/regent/mayor may formulate their own regulations about GERMAS to cover their areas, and how community groups and religious groups issue regulations relating to GERMAS within their internal organizations. Furthermore, agreements were created between the Ministry of Health and Universities about Facilitating Scout Clubs in support of the Community Movement to have a Healthy Life. In the DKI Jakarta context, GERMAS was integrated with their current program entitled 'Knock the Door, Provide Service with Health', which was officially announced at a Local Health Meeting in 2017.

However, the interview with local people in Jakarta indicated that they were unaware of the current health regulations. Furthermore, the interview with NGOs showed that they agreed with this claim and added that community members also lacked awareness of their rights and obligations about health. An NGO official had

heard the information about health shared in a forum, but in her opinion, there was no further action taken to disseminate the information to more people in the community. This NGO then asked the researcher to have a sharing session within the FGD with the local people in Muara Angke, North Jakarta about people's rights and obligations towards health, both from the mandates of the national government and the local government in Jakarta.

Regulation	Description	Issued	Regulations	Description
Formal regulation				
1945 constitution				
People Assembly Decision	National laws passed by the People			
Acts (Undang-Undang)	Formulated by House of Representatives with the agreement of the president	First issued	Act No. 9/1960 about the essential of health (Undang-undang No. 9/1960 tentang Pokok-pokok Kesehatan)	Focus on addressing diseases and prevention
		First amendment	Act No. 23/1992 about health (Undang-undang No. 23/1992 tentang Kesehatan)	The promotion effort through disseminating information and awareness raising effort were added
		Second amendment and currently used	Act No. 36/2009 about health (Undang-undang No. 36/2009 tentang Kesehatan)	A new strategy about risk avoidance and risk reduction effort
Government Regulation (Peraturan Pemerintah)	Issued by president to implement specific pieces of legislation		Government Regulation (Peraturan Pemerintah) No. 40/1991 about infectious diseases epidemic	A strategy to tackle infectious diseases that occur at that time
Government Regulation in Lieu of Law (Peraturan Pemerintah Pengganti Undang-undang)	can be issued by the president in an emergency and have immediate effect, but must be subsequently ratified as laws by the DPR			
Presidential Regulations (Peraturan President)	issued by the president to implement legislation and to guide the functioning of executive branch of government		Presidential Regulation No. 72/2012 about National Health System (Peraturan Presiden No. 72/2012 tentang Sistem Kesehatan National)	To guide the related government. The prevention and promotion effort also highlighted to be the focal point within this regulation.
Informal regulation				
Presidential Decree (Keputuasan Presiden)	To guide activities of officials or a group of officials within a government institution. They are issued to determine or define specific policy needed and are only binding in their respective sectors as an administrative decision.			
Presidential Instruction (Instruksi Presiden)		First issued	president instruction no.1/2017 about healthy life style movement	To guide the implementation of healthy lifestyle movement
Minister of Health Regulation (Peraturan Menteri Kesehatan)		first issued	Minister of Health Regulation 949/MENKES/SK/VIII/2004 about Guidance of the implementation of epidemic early warning system	To guide early warning system on epidemic outbreak
		first issued	The Minister of Health Regulation 585/MENKES/SK/V/2007 about Guidance of health promotion implementation in primary health care centre (puskesmas)	To guide health promotion in primary health care centre
		first issued	The Minister of Health Regulation 374/MENKES/PER/III/2010 about Vector Management	Strategy to manage vector
		first issued	The Minister of Health Regulation 1501/MENKES/PER/X/2010 about the type of infectious disease that potentially lead to epidemic	A guidance to recognise about infectious diseases that may cause epidemic outbreak
		first issued	The Minister of Health Regulation No. 74/2015 about health improvement and diseases prevention effort	A guide to improve health and prevent diseases
		first issued	The Minister of Health Regulation No. 44/2018 about the implementation of health promotion in the hospital	To guide health promotion in hospital
Minister of Health Decree (Keputusan Menteri Kesehatan)				
Minister of Health Instruction (Instruksi Menteri Kesehatan)				

Table 5-2: Regulation of PH in the national government

Regulation	Description	Issued	Regulations	Description
Formal regulation				
Provincial Regulation (Peraturan Daerah Provinsi)	formulated by provincial house of representative with the agreement of the governor			
Informal regulation				
Governor Regulation (Peraturan Gubernur)	To guide activities of officials or a group of officials within a government institution. They are issued to determine or define specific policy needed, and are only binding in their respective sectors as an administrative decision.	first issued	Governor Regulation No. 115/2015 about "Knock the Door, Provide Service with Health" program (Peraturan Gubernur No. 115/2015 tentang Program Ketuk Pintu Layani Dengan Hati)	A guidance to implement a healthy life style by preventing diseases, promoting health and delivering health service to Jakarta community
Governor Instruction (Instruksi Gubernur)				

Table 5-3: Regulations for PH in local government in Jakarta

5.1.2 The Organisation Structure and Stakeholders of Public Health

The health system in Indonesia has a comprehensive organisation structure from the national to the local level (see figure 5-4). There are designated people, such as civil servants as well as volunteers, who continuously take actions to execute health programs including disease prevention and health promotion at all levels to address the information available about certain health issues. The current key actors within the health sector at a national level are the Ministry of Health, the Ministry Home Affairs, the Food and Drug Control Agency, the Social Security Managing Agency, and the Family Planning and Population Board. The Ministry of Health is responsible for national health and the running of a 'vertical' level hospital (that is MoH owned). At the provincial level, the provincial government manages provincial health through the provincial health office (PHO), provincial family planning and population agency, and provincial hospitals. At the district level, district governments manage district health through a district health office (DHO), a district family planning and population agency, district hospitals and primary healthcare centres. Primary healthcare centres are available from the sub-district level to the village level (see figure 5-1). Additionally, the primary healthcare centres work with voluntary health agents from neighbourhood groups (in Bahasa RT/RW) in their coverage areas (see table 5-4). Moreover, the health sector also works with NGOs and the private sector to implement their programs.

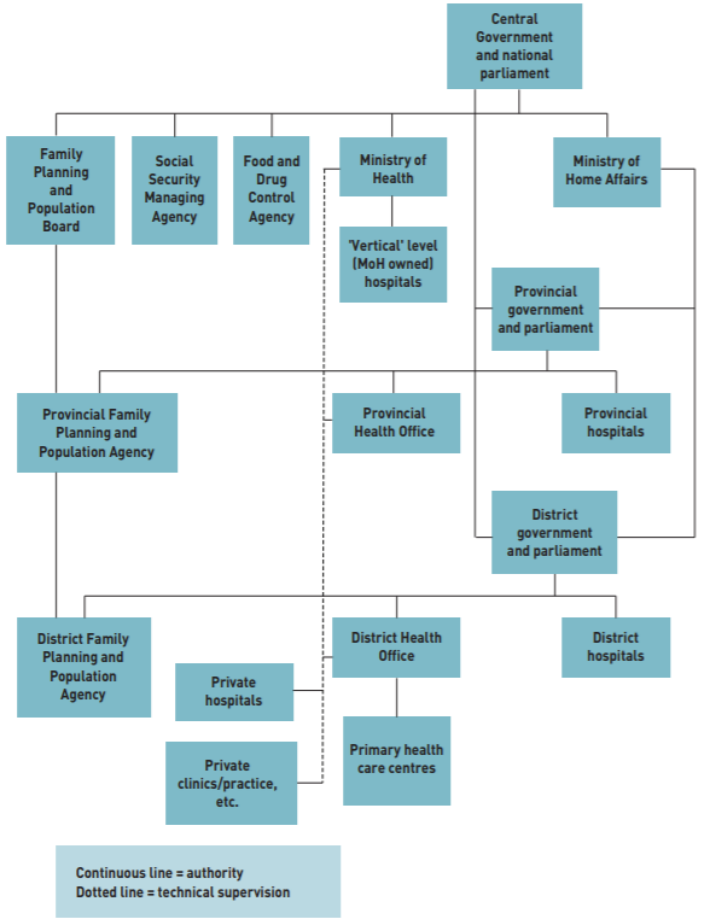

Figure 5-1: The organization of the health system in Indonesia (Mahendradhata et al., 2017)

Facility	Population served	Service
Primary health centre (*puskesmas*)	30 000	Primary care curative, rehabilitative, preventive, promotive
Auxiliary *puskesmas* (*pustu*)	Up to 3000	Simple health service unit
Mobile *puskesmas* (Pusling)		Replacing *puskesmas* and *pustu* for remote areas, using motorcycles, cars or boats
Village midwives (*Bidan di desa*)	1 or a few villages	Maternity care, prenatal and postnatal care as well as family planning, provided by village midwives usually at *polindes*
Village maternity clinic (*Polindes*)	1 or a few villages	Maternity care, prenatal and postnatal care as well as family planning. The land and/or buildings are a combination of government and community funded. Usually *polindes* are also where the village midwives are based
Village health post (*poskesdes*)	1 or a few villages	A community-based care unit. Served by village midwives and health cadres, providing a more comprehensive service than *Polindes*, including surveillance and health promotion
Integrated health service post (*posyandu*)	120 households	A community-based care unit. Information and services on family planning, maternal and child health, immunization, nutrition, diarrhoea, basic sanitation and essential drugs, conducted by local health cadres with regular visits by *puskesmas* staff

Table 5-4:The network of the primary healthcare centers and community-based care (Mahendradhata et al., 2017)

The decentralization of PH regulations since 1999 have allowed local governments to manage their area for basic life services including health. Health services and health programs have changed from previous national government responsibility (centralisation) to local government responsibility (decentralisation). However, the Indonesian local government does not have equal capacity and capability to carry out health programs and resulted in staff transfers from clinical services to administrative functions. The interview with Ministry of Health officials indicates that decentralisation causes difficulties in health sectors because they do not have direct authority at the provincial and district level. Furthermore, the PHO does not have authority in the DHO.

In the context of DKI Jakarta, a provincial health office is responsible for the health of the people in the area. There are six sub-district health offices within the Jakarta area including West Jakarta, North Jakarta, East Jakarta, South Jakarta, Central Jakarta, and Thousand Islands, all of whom directly report to the PHO. These sub-district health offices coordinate the primary healthcare centres within their area. The primary healthcare centres then deliver curative and rehabilitative health services and also work in health prevention and promotion. In terms of the promotion and preventive efforts, volunteers are gathered from each neighbourhood to be health agents for their neighbourhood areas. An interview with one head of a neighbourhood group (Ketua RW) asserted that he had several voluntary health agents within his area that

were responsible for monitoring mother and child care, elderly care and monitoring Aedes Aegypti to prevent the outbreak of dengue fever.

5.1.3 The Implementation of Public Health (Health Promotion and Disease Prevention Program)

Ministry of Health officials carefully and properly planned their programs, including prevention and promotion programs before deploying them. The Ministry of Health has as their five-year strategic development program (2015-2019 is the currently used plan) within the health sector that referred to a medium-term national development program within the national planning agency plan of 2015-2019. Each department within the Ministry of Health then developed its action plan based upon the above strategic development programs including within the disease prevention and health promotion department. The Ministry of Health created the health program for the national level. Local health offices all over Indonesia then develop their own program with a combination of national programs and conditions within their area of authority. Moreover, primary healthcare centres could creatively develop activities to implement the programs as long as they are able to achieve the desired goals determined by the local health offices. The current government health officials admitted that they benefitted from the organisational structures of the health sector. Accordingly, there are designated resources which continuously address health issues and implement health programs at all levels from the national to the household level in the community. For example, there are at least three health agents within a neighbourhood group in Bidara Cina which are responsible for helping provide mother and child healthcare, elderly care, and dengue fever prevention. Furthermore, there is a plan to make one person in every family to be health agent that monitors the health status of a family member.

The interview found that there are three main strategies used in implementing health programs. These are advocacy, partnership, and community movement. However, combining such strategies within a program can have varied outcomes depending on the problems in various contexts and the targeted audience of the programs. A government official who shared her experience in using the strategies stated that *"... when we want to convince leaders or other government officials about our programs, advocacy will be dominantly used. Furthermore, we use a partnership strategy to collaborate with private sectors or community organisations. We can't get the job done alone; we should collaborate with them. Also, community movement strategy will be initially used on awareness raising program, before providing the real lesson of the program. For example, we worked with celebrities and public figures to popularise physical activities such as running in Jakarta. Most of the community then did physical activity particularly running just*

because of their idols were doing that. After they committed to doing that, we started to provide lessons on the importance of physical activity to be healthy. This strategy is effective for people in Jakarta…"

Decentralisation also affected the implementation of health programs. The interview with the MoH official indicated that it caused a fracture between national and local governments. For example, the local government had no obligation to deliver reports resulting in difficulties in gathering data. Furthermore, a health system review report of Indonesia from the World Health Organization agreed with this claim and added that the MoH did not entirely apply the principles of decentralisation yet as they were still focused on central planning and budgeting. There were also limited guidelines available to execute decentralisation resulting in unsatisfactory implementation of the decentralisation functions themselves. To address this issue, a minimum service standard regulation was created to guide local governments about the basic services to be provided to the community.

The interview with local people in some neighbourhood groups (in Bahasa RT/RW) in Jakarta indicated that regular and continuous activities have been carried out by health professionals and voluntary health agents on a weekly or monthly basis. NGOs also recognised that health programs were regularly held within the community in Jakarta. This repetitive engagement leads to active participation in the health programs made available in the community. A neighbourhood leader in the FGD session reported that *"…Our neighbourhood group (Ketua RW) got prioritised in the health programs. We have regular programs named Posyandu for mother and children care and Posbindu for elderly care on a monthly basis, Jumantik for dengue fever control, and a physical activity program such as gymnastics on a weekly basis. The neighbourhood office is regularly used to conduct those activities. Besides that, we sometimes have accidental programs such as free medical services from a political party or university as part of their corporate social responsibility (CSR) program…*" As a result of the programs, local people are aware of what to do when they or members of their family get sick and require healthcare.

5.2 Disaster Risk Reduction

5.2.1 The Regulations of Disaster Risk Reduction

Multiple regulations were issued to regulate disaster management at a national level (see table 5-5). The national goal of providing life and livelihood protection from disasters to achieve prosperity has been stated within the foundational philosophical theory of Indonesia (Pancasila) and Constitution of 1945. The Disaster Management Act was the first documented regulation to organise the operation of disaster management in Indonesia, which was greatly developed after the Indian Ocean tsunami in 2004. Several

government regulations were then formulated based on this act to manage some issues such as the implementation of disaster management, funding and aid management during disasters, and the involvement of international aid organizations and other non-governmental organizations in disaster management. Furthermore, a presidential regulation was issued in 2008 to guide the operation of the National Disaster Management Agency as an organization. This presidential regulation was only recently amended, in which it allowed active army personnel to be the head of BNPB and add a new department of system and strategy. Additionally, a formal provincial regulation entitled the Local Disaster Management Agency was issued in 2011 which managed disaster management operation at the local level in the Jakarta area.

There are also several informal regulations that were issued by the head of BNPB to provide guidance on numerous aspects such as disaster risk assessment, resilience at the village level, the implementation of resilience within schools, the mainstreaming of gender in disaster management, the treatment, protection, and participation of people with disabilities in disaster management, training for disaster management, a local disaster management agency, the participation of community in the implementation of disaster management, and education and training in disaster management.

At the Jakarta level, several formal and informal regulations were issued to support BPBD in executing their job (see table 5-6). A provincial regulation about the formation of a local disaster management agency was issued to elucidate local disaster management agency organization and how it should operate in the Jakarta area. Furthermore, the governor of Jakarta's regulations about the organisation and working system of local disaster management agency was also issued to guide the BPBD official. The governor's instruction was issued to guide stakeholders in Jakarta about their roles and responsibilities on specific issues such as preparedness and mitigation of flood risk, landslides and typhoon during the rainy season.

In general, BNPB and BPBD Jakarta officials believed that DRR regulation should be widely available to implement certain programs. As a civil servant, they usually used regulations as a legal requirement to implement certain programs. Otherwise, they could be sued for implementing a program without legal requirement. At the same time, regulations are also used as a strong foundation to convince and guide related stakeholders vertically and horizontally about the importance of a program. In term of availability, the interview with BNPB and BPBD Jakarta officials depict that they believed to have sufficient regulations about DRR. In the national level, BNPB officials said that there were several regulations that included DRR as one of the main foci of their disaster management approach (see figure 5-6). However, BNPB admitted that they still had some problems in implementing the available regulations. At the local

level, BPBD Jakarta officials also felt that it was their duty as a government official to regulate how disaster management operated within their area. They believed in having sufficient regulations that were not only based on BNPB regulations but also on their own regulations that were based on local conditions in Jakarta and only applicable for local use. Several NGOs also agreed that there were sufficient regulations about disaster management available, but they pointed out the importance of regulation implementation. An interviewee from a major NGO which had been involved in disaster management in Indonesia for years stated that *"…based on the survey of IFRC (International Federation of Red Cross and Red Crescent Societies) about Disaster Management Law in Southeast Asia, Indonesia is among the ones who have comprehensive regulations in Southeast Asia. That means there are multiple documented regulations on disaster management. Because we face a lot of disaster events here, they may trigger the idea to formulate regulation on disaster management. However, we still have the problems in the implementation of the available disaster regulations on the field, which is mainly caused by lack of capacities in all levels…*"

The findings indicate that DRR (in Bahasa pengurangan risiko bencana) is only mentioned five times within Act No. 24/2007 about Disaster Management and fourteen times within government regulation No. 21/2008 about the Implementation of Disaster Management. Both documents stated the same things in which DRR was one of the main activities focused on in normal conditions. The regulations define DRR as activities to reduce the threat and vulnerability and also increase people's capability to face disaster events. There are five activities determined by this regulation to reduce disaster risk: introducing and monitoring disaster risk, participation in disaster management plans, development of disaster awareness, increasing commitment of disaster management actors, the implementation of physical and non-physical measures, and also the arrangement of disaster management. Furthermore, government regulation No. 21/2008 about the Implementation of Disaster Management added a clause about the DRR action plan at the national and local level. The DRR national action plan should be properly generated in a forum that consists of multiple stakeholders such as government officials, NGOs, community, and private sector, all of which are coordinated by the BNPB. This national action plan should be consulted and coordinated with institutions who are responsible for the national development plan. Similarly, BPBD creates a local DRR action plan at the local level. The action plan should be aligned with national DRR action plans and local development plans.

In term of information sharing, BNPB and BPBD officials notify related stakeholders of a new regulation. The regulation is also shared on their official website and social media that can be accessible for everyone. However, it is found that affected people in Jakarta are unaware of the regulations as they were mostly

silent whenever being asked about regulations. The head of a community group (Komunitas Mat Peci) also agreed that most people in Jakarta have a lack of knowledge about disaster management regulations and believe that the regulations are only shared among government officials such as the community head (kepala kelurahan). He stated that *"... the regulation on disaster management has improved significantly. However, the available regulations are poorly disseminated to the community. If there is any information sharing, it is usually only for a government official to the community office, but it is rarely shared further to the community. I want to make an analogy. Let say there is an expensive good and continuously publicise on television; there will be people who buy that product. On the other hand, there is an affordable and useful good that have never been publicised, no one will buy the product because no one knows about it…*".

Regulation	Description	Issued	Regulations	Description
Formal regulation				
1945 constitution				provide life and livelihood protection from disaster to achieve prosperity
People Assembly Decision (Ketetapan Majelis Permusyawaratan Rakyat)	National laws passed by the People Assembly and approved by the president			
Acts (Undang-Undang)	Formulated by House of Representatives with the agreement of the president		Act No. 24/2007 about Disaster Management (Undang-undang No. 24/2007 tentang Penanggulangan Bencana)	first documented regulation to organize the operation of disaster management in Indonesia which greatly developed after the Indian ocean tsunami in 2004
Government Regulation (Peraturan Pemerintah)	Issued by president to implement specific pieces of legislation		Government Regulation No. 21/2008 about The Implementation of Disaster Management	To guide the implementation of disaster management
			Government Regulation No. 22/2008 about Funding and Aid Management in Disaster	To guide the management of funding and aid in disaster
			Government Regulation No. 23/2008 about the involvement of International organization and International Non-Government Organization in Disaster Management	To guide the involvement of international actors such as international organizations and non-government organization in disaster
Government Regulation in Lieu of Law (Peraturan Pemerintah Pengganti Undang-undang)	can be issued by the president in an emergency and have immediate effect, but must be subsequently ratified as laws by the DPR			
Presidential Regulations (Peraturan President)	issued by the president to implement legislation and to guide the functioning of executive branch of government	first issued	Presidential Regulation No. 8/2008 about National Disaster Management Agency	regulate about BNPB and how it should operate
		first amendment	Presidential Regulation No. 1/2019 about National Disaster Management Agency	Active army personnel allow to be head of BNPB. New department of system and strategy was added
Informal regulation				
Presidential Decree (Keputuasan Presiden)	To guide activities of officials or a group of officials within a government institution. They are issued to determine or define specific policy needed, and are only binding in their respective sectors as an administrative decision.			
Presidential Instruction (Instruksi Presiden)				
Head of BNPB Regulation (Peraturan Kepala BNPB)		first issued	Head of BNPB Regulation No. 02/2012 about General Guidance of Disaster Risk Assessment	To guide about risk assessment
		first issued	Head of BNPB Regulation No. 1/2012 about Guidance of Resilience Village	To guide the implementation of disaster management on the village level
		first issued	Head of BNPB Regulation No. 04/2012 about Guidance of the implementation of Resilient School	To guide the implementation of disaster management at school
		first issued	Head of BNPB Regulation No. 13/2014 about Mainstreaming Gender in Disaster Management	To guide the balance on the involvement of both man and woman in disaster
		first issued	Head of BNPB Regulation No. 14/2014 about Treatment, Protection, and Participation of People with Disabilities in Disaster Management	To guide the involvement of people with disability in disaster
		first issued	Head of BNPB Regulation No. 14/2009 about General Guidance on training Implementation on Disaster Management	To guide the implementation of training in disaster management
		first issued	Head of BNPB Regulation No. 03/2008 about Guidance on Local Disaster Management Agency	To guide the work of Local Disaster Management Agency
		first issued	Head of BNPB Regulation No. 11/2014 about the Participation of Community in the Implementation of Disaster Management	To guide the participation of community in disaster management
		first issued	Head of BNPB Regulation No. 04/2016 about Education and Training of Disaster Management	To guide the implementation of education and training on disaster management

Table 5-5:The national government regulations on DRR

Regulation	Description	Issued	Regulations	Description
Formal regulation				
Provincial Regulation (Peraturan Daerah Provinsi)	formulated by provincial house of representative with the agreement of the governor	First issued	Provincial regulation No. 9/2011 about local disaster management agency	It regulated local disaster management agency as an organization and how it should operate
Informal regulation				
Governor Regulation (Peraturan Gubernur)	To guide activities of officials or a group of officials within a government institution. They are issued to determine or define specific policy needed, and are only binding in their respective sectors as an administrative decision.	First issued	Governor of Jakarta regulation No.11/2013 about organization and working system of local disaster management agency	To guide the work of local disaster management agency
		First issued	Governor of Jakarta regulation No.90/2014 about guidance in determining disaster status	To guide on the determining disaster status
Governor Instruction (Instruksi Gubernur)		First issued	Governor instruction No. 133/2018 about preparedness and mitigation on the risk of flood, landslides, and typhoon in rainy season	To guide the implementation of prepareness and mitigation on flood, landslides, and typhoon in rainy season

Table 5-6: The local government regulation of DRR in Jakarta

5.2.2 Organisation Structure and Stakeholders of Disaster Risk Reduction

In general, BNPB officials said that disaster management requires a multisectoral approach in order to operate. The official government representative of disaster management was only available at the national (BNPB), provincial and district/municipal level (BPBD). The subdistrict and village government were then mandated to be the messenger to the community (see figure 5-2). Additionally, they recognised various potential stakeholders such as government officials at all levels, NGOs, private sectors, community groups, and community members to work together to address disaster problems in Indonesia. However, it was found that most stakeholders did not share the same perspectives about the importance of disaster management and disaster risk reduction yet.

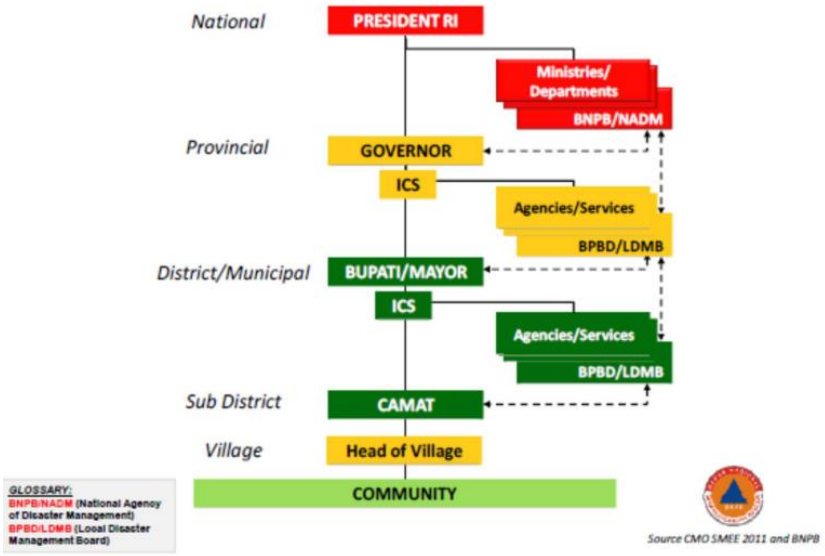

Figure 5-2: The organization structure of the disaster management agency (BNPB) (BNPB, 2016)

The findings indicate that BNPB has a weak political position structurally. BNPB was an independent institution that was equal to the ministry and directly reported to the president. However, politically speaking, it was not at the same level as a ministry. As a result, it is assumed that BNPB had difficulty in coordinating with other ministries. Recently, the BNPB was downgraded to be under the coordination of the Ministry of Politics, Law, and Security. Consequently, BNPB is not an independent institution anymore and have hardships in doing their job. This whole approach to disaster as a battle in a war reflects the dominant hazard paradigm and that has long failed to address the root causes of vulnerability.

Furthermore, the BNPB and BPBD are found to be structurally unrelated because of the implementation of decentralisation in Indonesia, where local government has a full obligation to operate within their area. In this context, the BNPB is a national institution while BPBD belongs to a local government that is structurally coordinated by the Ministry of Home Affairs. So, there is no direct line of command between

the BNPB and BPBD, but technical supervision can be given if required. A BNPB official said that their role is to assist BPBD, while a BPBD official stated that their role was about informing the public about things that happen in Jakarta.

5.2.3 The Implementation of Disaster Risk Reduction

The available regulations have been interpreted into the National Plan of Disaster Management 2015-2019. The word DRR (in Bahasa Indonesian pengurangan risiko bencana) is mentioned twice in this plan compared to the regulation, which is mentioned some thirty-three times. DRR is one of the main objectives of this national plan. There are eight steps determined within the plan to reduce disaster risk within the period as follows: (1) Reinforcing prevention and preparedness; (2) Developing an integrated system of disaster risk reduction and preparedness; (3) Utilizing and allocating resources based on risk assessments and contingency plans; (4) Developing integrated infrastructure of early warning systems; (5) Developing infrastructure for disaster mitigation; (6) Capacity building through education and training; (7) Disseminating reliable disaster information system; and (8) Providing adequate logistics and equipment. Additionally, the steps are constructed into an action plan and focused on mainstreaming DRR in the national development plan and has integrated DRR with disaster response and recovery. At the local level, BPBD Jakarta has also created a local disaster management plan through the Governor Regulation No. 143 in 2015 about the disaster management plan 2014-2019. However, disaster risk reduction did not seem to be their focus point.

Overall, BNPB and BPBD Jakarta have two main jobs – to be an adviser, who is responsible in creating, monitoring, and evaluating disaster management regulation and guidance, and to be an executor, who is responsible for coordinating, commanding, and executing the disaster management process. The advising job creates regulation and guidance and seems to run well within the regulation of head BNPB No. 6/2014. However, the executing job needs to be re-evaluated. The findings indicate that BNPB and BPBD Jakarta are unable to carry out the commanding and executing job, particularly when responding to disaster as they do not have a direct subordinate. Because disaster events are considered to be extreme events that cause damage within a community and cannot be tackled independently, the army or police usually take responsibility for the job. This approach assumes that disasters are a battle against humans, and this reflects the dominant hazard paradigm that has long failed to address the root causes of vulnerability. Moreover, coordination of stakeholders is the most feasible job to be done by BNPB and BPBD Jakarta in the disaster management process, but countless problems still exist in the implementation. The interviews with NGO stakeholders also echoed these problems.

The implementation of DRR programs at a national level focuses on a safe school program, resilient community program, national action for awareness raising, and increased capacity and capability in all sectors including government officials, NGOs, community groups, and community members. Some programs were conducted on a regular basis but less frequently such as once or twice a year and other programs were conducted upon request or opportunistically. As a result, the programs' measurements are still in the output phase, which means that programs have been implemented in a variety of places, but their effects before and after disaster events has not been measured yet. The minimal follow-up engagement of the programs then leads to a lack of awareness among local people of the program, which ultimately affects their participation in the programs.

The findings indicate that the implementation of DRR programs within the community is varied between one area and another in Jakarta. The interview with NGOs shows that some of them are appointed to assist communities in developing a contingency plan for areas considered within the high-risk category at the village level (kelurahan) in Jakarta. Within this development process, they conduct a meeting to develop the document, table top exercises, and an emergency drill based on the discussed scenario. After the program, the participant reflects on some of the knowledge that they learned. However, there is currently no further action taken to share and implement the contingency plan with the targeted community.

Another finding in terms of the implementation of DRR programs is the mindset of local people who are affected by floods in Jakarta. Because flooding frequently occurs for a long period, people no longer see flooding as a problem. Indeed, they have adapted to the situation over time by building two-story houses and they stay on the second floor during the flooding period. Most of them decline evacuation because of house cleaning. As the flood lessens, they manually sweep away the mud along with the flood water. They believe that mud is hard to clean when it is dry. If they are evacuated and return when it is dry, they say they would need extra water and extra effort to clean their house in the aftermath of the flood. Interestingly, flood affected communities consist of middle to low-income communities who illegally build their houses on the government land close to the river or near the sea. A local who has lived in Jakarta for more than twenty years stated in the FGD session that *"…So, most people who live here (Bidara Cina, East Jakarta) get used to flooding. When the flood is as high as our ankle, or it is as high as our knee, that's normal. It will recede within three to four hours. That's common, we have experienced it many times. Because it is only water, that's not a big problem. We are more afraid of fire that will make us lose everything. However, we usually get tired cleaning our houses after every flood as it may happen twice a day…*"

5.3 The Similarities and Divergences of PH and DRR

Some similarities between PH and DRR in Jakarta are as follows. In terms of regulation, both public health and disaster management officials are aware that regulations are important, as there is a legal requirement for them to deploy their programs. Moreover, regulations are shared in various ways with the community, but most community members are unaware of health or disaster management regulations. Another point is that both public health and disaster management officials work together with various other stakeholders such as ministries at the national level, local agencies at the local level, international organizations, NGOs, the private sector, community groups, and community members to achieve their desired goals. During the implementation phase, it is obvious that the targeted subject of both PH and DRR programs are local people who are the most vulnerable to diseases and disasters. These people usually belong to the middle and low-income group. Interestingly, some of them are found to live in an illegally built house on government land close to the river or near the sea.

Similarities between PH and DRR
Regulations
• Both PH and DRR officials are aware that regulations are important as there is a legal requirement for them to deploy their programs. • Regulations are shared in various ways, but most community members are unaware of both PH or DRR regulations.
Organization Structures and Stakeholders
• Both PH and DRR officials work with various stakeholders such as ministries at a national level, local agencies at a local level, international organizations, non-governmental organizations (NGO), the private sector, community groups, and community members to achieve their desired goals.
Implementation
• Community members are the targeted subject of both PH and DRR programs. • The most vulnerable people to health and disaster are from middle and low-income groups who illegally build their houses on government land close to the river or near the sea.

Table 5-7:The Similarities Between PH and DRR

Apart from the above similarities, some divergences are also found with public health and disaster risk reduction. PH is more established than DRR in term of regulations, which makes PH more mainstream than DRR. Health became a national priority in the 1960s to address the health problems at the time, which led to the issue of the first nationwide health regulation at that time. Health regulations have since been amended twice to be the currently used health regulation. The first act was focused on curing diseases and a small proportion of it was dedicated to preventative efforts. Moreover, the first amended act added promotion efforts through disseminating information and awareness raising. Furthermore, a new strategy about risk avoidance and risk reduction effort to address health problems and the negative effects of health

were included in the currently used Act. As a result, the PH sector has been significantly improved from time to time based on the health problems that are experienced by the community at a particular time. This has made health relevant to the people within a community and has therefore engaged everyone. On the other hand, DRR is a relatively new approach. Efforts have been made by the government to head towards mainstreaming DRR, but it is not sufficient enough yet. The Indonesian government was alerted to disaster management after the 2004 tsunami, and it took three years for them to issue an Act No. 24/2007 about Disaster Management. DRR was one of the foci within the act, but its implementations are currently still minor. The perspectives on DRR are diverse, which makes DRR simply a concern of the BNPB and the BPBD, rather than all people within the community.

Another difference between PH and DRR is to do with the organization structure and stakeholders. PH has dedicated personnel (see figure 5-4) to deliver disease prevention and health promotion programs at all levels including the Ministry of Health, the Ministry Home Affairs, the Food and Drug Control Agency, the Social Security Managing Agency at a national level, provincial health offices (PHO), the provincial family planning and population agency, provincial, hospitals, district health offices (DHO), the district family planning and population agency, district hospitals, and primary healthcare centres at the sub-district to village level. Additionally, there are also designated voluntary health agents in every neighbourhood group who act as connectors between health professionals from the primary health care centre with the local people. As a result, regular and continuous efforts are made to address the everyday health problems experienced by people within the community. As a result, local people are aware of health and disease prevention efforts. On the other hand, DRR is only conducted by dedicated personnel from the BNPB at a national level and the BPBD at a provincial (see figure 5-8) in the case of Jakarta. At the sub-district to village level, DRR efforts are mandated as an additional job for local governments, but it is not the main priority. Most DRR activities within the study areas were conducted opportunistically, upon request, or after disasters had already occurred.

During the implementation phase, PH is a frequent and continued program from the national to the household and individual level through prevention and promotion approaches. This makes the community aware of health programs in action and what they should do when they are sick. On the other hand, while DRR has some good programs in action within the community, the programs are only conducted at a community level and are less frequent or only opportunistic. As a result, people have a general lack of knowledge about disasters and what to do when they face hazardous events. This may happen because people still think that diseases are more frequent and certain compared to disasters.

Divergences between PH and DRR	
Public Health	**Disaster Risk Reduction**
Regulation	
• Health has been a national priority since the 1960s when the essentials of healthcare were enacted in law through the formation of Act no 9/1960. This made health a concern of all people within a community.	• The first formal regulation on disasters was the Disaster Management Act No. 24/2007. DRR is one of the foci within the act, but its implementation is still currently minor. Perspectives on DRR are diverse and somewhat fragmented, which makes DRR thought of as the problem of the BNPB and the BPBD.
Organization Structures and Stakeholders	
• PH has comprehensive organization structures including the Ministry of Health, the Ministry of Home Affairs, the Food and Drug Control Agency, the Social Security Managing Agency, and the Family Planning and Population Board at the national level. At the provincial level, provincial health is managed through the provincial health office (PHO), provincial family planning and population agency, and provincial hospitals. At the district level, district health is managed through the district health office (DHO), the district family planning and population agency, district hospitals and primary healthcare centres (see figure 5-1).	• DRR has a less comprehensive organisation structure. The BNPB manages DRR at the national level and the BPBD at the provincial level. At the sub-district to village level, DRR efforts are mandated as an additional job of the local government (see figure 5-2).
Implementation	
• PH has frequent and continued programs at the household and individual level using a prevention and promotion approach to address health issues within the community. • As a result, people are more aware and knowledgeable about what to do to address a health issue because of their participation in health programs.	• The disaster management sector in general, including DRR, has some good programs in reducing risk in the community. However, the programs are only at a community level and less frequent or opportunistic. • As a result, people have a lack of knowledge about disasters and what to do when facing disaster because they rarely participate in DRR programs.

Table 5-8:The Divergences Between PH and DRR

Chapter 6 – Discussion

In this chapter, the research findings in the previous chapter are discussed in the context of the theoretical framework presented in Chapter 4. The role of regulations as a commitment and guidance for all are discussed first. The roles of the stakeholders follow, and the final section discusses the roles of collaboration and active participation in the effectiveness of implementation.

6.1 The Role of Regulations as a Commitment and Guidance for All

Laws and regulations have been important in PH as a tool to address public health concerns and to promote health (Burris et al., 2018; Hartsfield et al., 2007; World Health Organization, 2017). PH regulations pay significant consideration to health inequalities, the role of a healthy population within economic and social development, and focuses upon the notion of 'health for all' that is asserted in the Alma Ata Declaration of 1978 and the Rio Declaration on the Social Determinants of Health of 2013 (World Health Organization, 2017). 'Health for all' was later referred to in Indonesian health regulations and continues to be in their amendments up until today. Similarly, laws and regulations are also vital in reducing the risk of disaster (IFRC & UNDP, 2015). The Hyogo Framework for Action (HFA) 2005-2015 emphasised that legislation has an essential role in supporting DRR. This was further highlighted within the Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030, which focuses on reviewing and strengthening the legal aspects of DRR. The adoption of these documents by about 168 UN member countries in 2005 and their continued engagement today shows that these countries share the same vision about the directions of DRR (IFRC & UNDP, 2015; Picard, Planitz, Fisher, & Guinan, 2014; UNISDR, 2010, 2015b). This study indicates that the Government of Indonesia (GoI), through the MoH and BNPB, show their commitment to addressing both PH and DRR issues in the country through the implementation of certain laws and regulations. PH and DRR government officials emphasize the importance of laws and regulations as essential legal aspects for the institution to operate and is also in support of widely implementing their programs, particularly health prevention and promotion and DRR programs all over Indonesia. Laws and regulations also regulate and guided governmental activity, social and economic interactions, and population behaviour, all of which impact the realities of everyday life (Burris et al., 2018). In Indonesia, informal regulations such as decrees and instructions (see figure 5-2) are usually used as guides for determining roles and responsibilities of every involved stakeholder, from national governments, local governments, organisations, and private sectors, to individual community members themselves in addressing PH and DRR issues. For example, president instruction no.1/2017 contains essential instructions for ministries, government institutions, governors and mayors at the local level across

Indonesia, which guides them about what activities to do and what indicators support the maintenance of healthy lifestyle movement (in Bahasa, the Gerakan Masyarakat Hidup Sehat/ GERMAS).

Governments are responsible for organising and administering the laws and regulations (for both PH and DRR) based on a variety of factors such as historical and constitutional factors and specific challenges that have been faced in the past (Twigg, 2015; World Health Organization, 2017). Government officials in Indonesia have recognised their role and responsibility in developing and enacting the laws for both PH and DRR. Furthermore, collaboration and partnership with various stakeholders is needed in the formulation of laws, including with people in the community who may significantly influence the decision-making process (Pelling & Holloway, 2006; Twigg, 2015). This study indicates that the involvement of people in communities within the formulation of laws is minor, which shows that people in the community generally have a lack of awareness and knowledge concerning PH and DRR laws and regulations in Indonesia. Some studies also highlight that laws could be considered as compelling tools to stimulate change (Aronsson-Storrier, Marie; da Costa, 2017; Handmer et al., 2007). The findings indicate that PH and DRR policy in Indonesia is expected to address available health burdens such as infectious diseases and other hazardous events. However, the most vulnerable groups usually do not have strong voice to influence available law and policy (Aronsson-Storrier, Marie; da Costa, 2017; Handmer et al., 2007). The findings of this study indicate that efforts have been made to disseminate the available disaster regulations to the community through government officials. However, there is a missing link in the middle that is that community members of Jakarta are unaware of the regulations of both PH and DRR. As a result, the desired changes in terms of PH and DRR cannot be generated yet.

6.2 The Roles of the Organization Structure and Stakeholders that Ensures that Work is Done

Governance in the health sector is critical in that developed governance can have a positive impact on health outcomes (Ciccone et al., 2014; Marks et al., 2010). Among good governance indicators, *strong institutions* play a significant role in influencing the effects of public health spending (Marks et al., 2010), which directly contribute to health programs and their outcome. This study indicates that the public health sector in Indonesia has strong institutions in managing health at all levels. The governmental institutional structures of health consist of actors within the Ministry of Health at the national level, provincial health offices, district/municipal health offices, along with medical professionals in health facilities at each layer and primary community healthcare officers at the sub-district and kelurahan/village level (see figure 5-4).

Collaboration efforts such as sharing resources, working together, and combining talent has had a positive impact on improving health outcomes (Hann, 2005). The Government of Indonesia (GoI), through the

MoH, work together with ministries and non-government stakeholders such as NGOs, the private sector, community groups, and volunteers from the community to address health issues in their area and build their capacities. WHO (2015) asserted that multi-stakeholder partnership is needed to create a supportive environment in which these stakeholders can contribute to delivering the technical support required to develop community health capacities. It is also claimed that partnerships and collaboration are effective in mainstreaming health within a community, particularly when health programs are implemented frequently and regularly. As a result, people in the community are aware about health and they know what to do in order to improve their health status.

It is argued that a decentralisation in the health system could be effective in enabling the required health services in a given local context (Ciccone et al., 2014). Local governments in Indonesia could independently create and develop their health regulations, health programs and means of implementation by taking national resources as a reference. The provincial government health official in Jakarta reported that a decentralised health system is beneficial for them because they match health programs with the local context of Jakarta. Furthermore, they allow the primary community healthcare centres to practice this decentralised health system by creating their own means of delivering health services. Another study indicates that informal management practices such as the ability to connect health professionals with patients at the local level, and the personal connection of the community to local health offices contribute to the overall effectiveness of a decentralized health system (Atkinson & Haran, 2004).

The way in which national and local institutions address disaster risk significantly influences vulnerability to disasters, particularly in less affluent countries (Bang, 2013). The role of governments is vital in creating an environment where people feel empowered to reduce the risk of disaster (UNISDR, 2004). The government's institutional structure of disaster management only consists of the national disaster management agency (BNPB) at the national level and a local disaster management agency (BPBD) at the provincial, district and municipal levels.

It is argued that collaboration and partnership between stakeholders is able to improve the impact of the adopted initiative through a mutual understanding, respect, and facilitation of dialogue (Cadag & Gaillard, 2012; Twigg, 2015). In delivering their program, the BNPB and BPBD partnered with a variety of stakeholders, including governmental and non-governmental ones, that were responsible for addressing DRR in Indonesia. The government stakeholders at the national level are ministries such as the Ministry of Health, the Ministry of Social Welfare, the Ministry of Public Works, the National Planning and Development Agency at the national level. At the local level, BPBD builds partnerships with local

agencies such as the health agency, social agency, the public works agency, and the local planning and development agency at a provincial, district and municipal level. Moreover, there are some non-government stakeholders, including NGOs, the private sector, community groups, volunteers, and community members. However, these governmental and non-governmental stakeholders function mostly in response to disaster events. DRR activities during everyday conditions are less frequent and sometimes only opportunistic or conducted on request. As a result, some communities members lack awareness about disasters and what to do in response to disasters or appropriate ways of reducing disaster risk.

UNISDR (2004) emphasised on the needs of decentralised and institutionalised risk reduction at the local level through communication, information, partnership, coordination, decision-making, and control of resources (Bang, 2013; Bollin, 2003). The BPBD is responsible for implementing DRR programs at the local level in collaboration with local stakeholders. In this sense, the BNPB is responsible in assisting and providing advice if needed. Through government regulation no. 21/2008 on the implementation of disaster management, the GoI has determined the involvement of various actors in implementing DRR. However, there is no further explanation about the required engagement among actors (Djalante & Garschagen, 2017b). Furthermore, the potential governance collaboration of DRR between regions has also have been identified, but there is limited information about the appropriate procedures to coordinate or cooperate, especially during emergency situations (Djalante & Garschagen, 2017b). The BPBD admitted that they sent some personnel to respond during the tsunami in Lampung, but there was no collaboration with the neighbouring city's BPBD on further DRR activities.

6.3 The Role of Continuous Engagement and Active Participation in the Effectiveness of Implementation

Ciccone et al., (2014) highlighted that health engagement between local people such as health workers, patients, and family members and the strengthened social capital through a functioning system of justice and government transparency contributes to overall health outcomes. Several voluntary health agents from each neighbourhood group, along with health professionals from the MoH, PoH and primary healthcare centres in Jakarta continuously engage with local people to address health problems and activities aimed at improving health. Manandhar et al., (2004) argued that the engagement from local community health workers in delivering health interventions to local people through regular meetings on a monthly basis with women on reproductive health could decrease neonatal mortality.

Participation in PH programs is recognized to be a key component to improving health by many scholars (for example, see Baatiema et al., 2013; Bath & Wakerman, 2015; Kilewo & Frumence, 2015; Maciel

Filho & Araújo Júnior, 2002; Meier et al., 2012; Ndegwa et al., 2017; Singh et al., 2017). This study found that participation from various stakeholders was also considered to be a way to improve health through the implementation of preventative health and health promotion programs in Indonesia. Meier et al. (2012) stated that the participation of stakeholders such as government officials from a national to local level and non-government actors in the implementation of health programs could generate benefits both at a community and an individual level. On the one hand, participation could facilitate the shaping of health programs that match community needs and at the same time, participation could also strengthen individual beliefs about government motives. Baatiema et al., (2013) added that participation from health professionals within the government, non-government and community are all useful in evaluating the effectiveness of available health programs. The participation of the community on health matters is also argued to have several advantages such as improved health outcomes, equity, service access, relevance, acceptability, quality and responsiveness (Bath & Wakerman, 2015).

Similarly, it is vital for stakeholders such as government officials, NGOs, the private sector, community groups, and community members to engage by exchanging knowledge and having a two-way dialogue for sustainable DRR (Cadag & Gaillard, 2012). Government officials of Indonesia have recognised the need for engagement and participation of all stakeholders in the implementation of DRR. Burnside-Lawry & Carvalho (2015) argued that the government acts as a leader within the community and should therefore take the initiative to encourage participation in planning, allocation of local resources and participation of various stakeholders. However, there are major obstacles for public participation in DRR, such as ineffective leadership, political pressure, and a lack of coordination and communication between involved stakeholders that could lead to the failure of DRR programs (Becker, 2012; Burnside-Lawry & Carvalho, 2015). This study indicates that it is in cases of ineffective leadership and a lack of coordination and communication between involved stakeholders where implementation of DRR on the ground is inhibited.

Furthermore, local people are important resources since they are the first to be affected by disaster and they are also the first to respond. Local people are therefore also the first line of defence in diminishing vulnerability (Delica-Willison & Willison, 2013; J. C. Gaillard, 2010a). This study indicated that efforts had to be made to increase the awareness and capacities of local people in Jakarta. For example, NGOs could facilitate more table top exercises and perform more emergency drills that involve stakeholders including the BPBD Jakarta, local government, several NGOs, community groups, the private sector, and community members in North Jakarta. Gaillard (2010b) asserted that local people should be empowered generate capacities to cope with crisis through Community-Based Disaster Risk Reduction (CBDRR) that enables them to strengthen their livelihoods and live with risk on an everyday basis.

Chapter 7 – Conclusion

This chapter summarizes the key findings of the case study. It suggests the potentials of what PH and DRR can learn from each other. The final section presents some limitations of the study, which are followed by future directions of the study.

7.1 How can PH and DRR learn from each other?

The answer to the questions that were asked earlier in this research will be answered as follows: firstly, there are three main components of PH and DRR that identified in order to effectively implement them in a country which then become the focus investigation of the research. The components of PH and DRR consist of the laws and regulations, the partnerships and collaboration between stakeholders, and the implementation of programs.

Secondly, there is an available legal framework in place that acts as the basis of implementation as well as the guidance of PH and DRR activities in Indonesia. PH laws have been enacted for more than fifty years and have been amended three times. The amendments match changing contexts and conditions of health problems on the ground, which are also useful for frontline health workers, local people, and stakeholders. Meanwhile, the current version of DRR laws was the first issued version of the law and has been used for more than ten years since 2007. In this context, an opportunity to learn has opened up for DRR to PH in the sense that health law has been amended to fit the dynamic conditions of the problems on the ground.

Thirdly, there are available government organisation structures for both PH (see figure 5-1) and DRR (see figure 5-2) that address available PH and DRR issues on the ground. However, there are some differences in which PH have a primary healthcare centre and voluntary health agents that deliver PH programs at a neighbourhood level. In contrast, DRR is only mandated the task to deliver programs within local governments. The difference in implementation significantly influences the outcomes of PH and DRR. This is because PH program delivery is continuous and frequent compared to DRR. In this context, there is another chance for DRR to learn from PH, particularly in ensuring dedicated personnel are assigned to ensure continuity and frequency of intervention at a neighbourhood level or even at a household level. Moreover, both PH and DRR have recognised the importance of stakeholders' involvement in delivering their programs effectively.

Fourthly, both PH and DRR have the same targets in their program, which is local people within a community. The continuous engagement from the top level of PH in increasing the participation of local

people in PH programs has shown more progress compared to DRR interventions that are less frequent and opportunistic. As a result, PH is more concerned with local people's wellbeing because people are more aware and knowledgeable about what to do in order to address a health issue compared to DRR. In this context, again, another opportunity exists for DRR to learn from PH in ensuring that engagement is activated at the top level on a continuous and frequent basis.

Lastly, the previous identified similarities and divergences, as well as opportunities to learn from PH and DRR, will open up the possibility to improve its current implementation in Indonesia. However, the improvement could only be seen when PH and DRR could tackle their current weaknesses and at the same time, learn from the success story of others. In this context, DRR could first learn from PH for three main components investigate within this research, including the laws and regulations, the partnerships and collaboration between stakeholders, and the implementation of programs.

7.2 Limitations and Recommendations for Future Research

This research only focuses on three components of PH and DRR, that is, law and regulation, organisation structures and stakeholders, and implementation. As this study tried to answer several questions that were formulated in the earlier stages of the research, it is also inevitable to raise several issues that could be addressed in future research. Firstly, more components of PH and DRR could be identified and investigated to get other perspectives of what PH and DRR could learn from each other. Moreover, various case study areas could be explored to get more diverse data on how PH and DRR is implemented on the ground. Further future research could also consider how to generate more convincing data sets.

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Appendix One – Participant Information Sheets (PIS)

a) Example of PIS given to:
   Leader/Manager of Government Agency/Non-Government Organization/International Organization/Community Group
b) Example of PIS given to:
   Staff/Member of Government Agency/Non-Government Organization/International Organization/Community Group
c) Example of PIS given to:
   Individual Participants from Community
d) Example of PIS given to:
   Focus Group Discussion Participants

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PARTICIPANT INFORMATION SHEET

Leader/Manager of Government Agency/Non-Government Organization/International Organization/Community Group

Project title:
Public Health and Disaster Risk Reduction: Understanding Similarities and Divergences in Jakarta, Indonesia
Supervisor: **Dr. JC Gaillard**
Researcher: **Debby Paramitasari**

Researcher Introduction

My name is Debby Paramitasari. I am currently enrolling on Master of Engineering in Disaster Management at the University of Auckland, New Zealand. I am conducting a research thesis on the topic "Public Health and Disaster Risk Reduction: Understanding Similarities and Divergences in Jakarta, Indonesia". This research is supervised by Dr. JC Gaillard.

Project description and invitation

This research aims to examine the systems particularly policies, actors, initiatives of both public health and disaster risk reduction using a case study in Jakarta, Indonesia. The research also seeks to figure out drivers and strategies used by public health field to achieve their success which could become some great sources of learning for future improvement of disaster risk reduction field.

This research relies on the participation from a various range of respondents from public health, disaster risk reduction, and community. Therefore, I would like to ask your permission to invite your staff to participate in this research in order to share your agency expertise, stories, and experiences about policies, actors, initiatives, and implementation of either public health or disaster risk reduction initiatives in your area. Your agency involvement will not only contribute to my master thesis, but also give the opportunity to learn and improve disaster risk reduction as well as public health at the same time. The participation agreement in this research can be given by signing the attached Consent Form.

Project Procedures and Right to Withdraw from Participants

With your permission, a face to face interview with your staff will be conducted between 1st January 2019 and 28th February 2019. It will be a great help if you could deliver this research information to the potential participants. The interview will take a maximum of 60 minutes and might be conducted during working hour, depending on the availability of the participants. The participant will have the option not to answer the question and may withdraw the participation at any time without any explanation. The participant also has the right to withdraw the information provided to the research within 30 days after the completion of the interview. Moreover, with permission of participant, the interview will be audio-recorded, and the participant will receive the transcript of the interview recording and 14 days will be given to the participant to edit the transcript if he/she wish to do so.

Data storage/ retention/ destruction/ future use

Digital data of the research including audio recording, transcripts, and photographs of participants' drawing will be stored in the password-protected computer, backed up by a server, at the University of Auckland and will be deleted after six years. Hard file data of the research such as research note will be kept confidential and stored in a locked cabinet at the University of Auckland and will be deleted after six years. If requested, the summary document, thesis, and publication of the research will be made available for you.

Anonymity and Confidentiality

All information collected during the interviews and focus group discussion will be kept confidential and only discussed with my supervisor. The data and information obtained will be present in a way that does not identify participants.

The interview might cause some physiological/emotional discomfort or distress on participants. If this condition occurs to your staff, the interview will be stopped. The researcher will ask about their condition and they will have option to continue or postpone the activities if they wish to do so. If their condition is severe, the researcher will offer to contact local support service such as the local Red Cross chapter through this support line: DKI Jakarta Red Cross: 021- 3906666.

The data obtained from the interview will be used to produce a master thesis, related to conference presentations and journal publications

Thank you for taking your time to consider this invitation on participating in this research. If you have further queries about the research, please contact me at dpar547@aucklanduni.ac.nz.

If you have further queries, please contact:

Researcher	Supervisor	Head of School
Debby Paramitasari Candidate for Master of Engineering in Disaster Management, Faculty of Engineering, The University of Auckland Private Bag 92019 Auckland Central, New Zealand Email: dpar547@aucklanduni.ac.nz	**Dr. JC Gaillard** School of Environment, Faculty of Science, The University of Auckland Private Bag 92019 Auckland Central, New Zealand Tel: +64 9 373 7599 ext.89679 Fax: +64 9 373 7434 Email: jc.gaillard@auckland.ac.nz	**Dr. David Hayward** School of Environment, Faculty of Science, The University of Auckland Private Bag 92019 Auckland Central, New Zealand Tel: +64 9 923 8454 Email: d.hayward@auckland.ac.nz

For any concern about ethical issues, you may contact the Chair, The University of Auckland Human Participants Ethics Committee, at the University of Auckland Research Office, Private Bag 92019, Auckland 1142. Telephone +64 9 373 7599 ext. 83711. Email: ro-ethics@auckland.ac.nz.

Researcher

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON **07 February 2019** for three years, Reference Number **022343**

School of Environment
Science Centre, Building 302
23 Symonds Street, Auckland Central,
New Zealand

The University of Auckland
Private Bag 92019
Auckland 1142, New Zealand

PARTICIPANT INFORMATION SHEET

Staff/Member of Government Agency/Non-Government Organization/International Organization/Community Group

Project title:
Public Health and Disaster Risk Reduction: Understanding Similarities and Divergences in Jakarta, Indonesia
Supervisor: **Dr. JC Gaillard**
Researcher: **Debby Paramitasari**

Researcher Introduction

My name is Debby Paramitasari. I am currently enrolling on Master of Engineering in Disaster Management at the University of Auckland, New Zealand. I am conducting a research thesis on the topic "Public Health and Disaster Risk Reduction: Understanding Similarities and Divergences in Jakarta, Indonesia". This research is supervised by Dr. JC Gaillard.

Project description and invitation

This research aims to examine the systems particularly policies, actors, initiatives of both public health and disaster risk reduction using a case study in Jakarta, Indonesia. The research also seeks to figure out drivers and strategies used by public health field to achieve their success which could become some great sources of learning for future improvement of disaster risk reduction field.

This research relies on the participation from a various range of respondents from public health, disaster risk reduction, and community. Therefore, I would like to invite you to participate in this study in order to share your expertise, stories, and experiences about policies, actors, initiatives, and implementation of both public health and disaster risk reduction initiatives in your area. Your involvement will not only contribute to my master thesis, but also give the opportunity to learn and improve disaster risk reduction as well as

public health at the same time. Your participation agreement in this research can be given by signing the attached Consent Form.

Project Procedures and Right to Withdraw from Participants

With your permission, I will conduct a face to face interview with you between 1st January 2019 and 28th February 2019. The interview will take a maximum of 60 minutes and will be conducted at a time and place which is the most convenient for you. You will have the option not to answer the question and may withdraw your participation at any time without any explanation. You also have the right to withdraw the information you provided to the research within 30 days after the completion of the interview. Moreover, upon your permission, the interview will be audio-recorded, and you will receive the transcript of the interview recording and 14 days will be given to you to edit the recording if you wish to do so.

Data storage/ retention/ destruction/ future use

Digital data of the research including audio recording, and transcriptswill be stored in the password-protected computer, backed up by a server, at the University of Auckland and will be deleted after six years. Hard file data of the research such as research note will be kept confidential and stored in a locked cabinet at the University of Auckland and will be deleted after six years. If requested, the summary document, thesis, and publication of the research will be made available for you.

Anonymity and Confidentiality

All information collected during the interviews will be kept confidential and only discussed with my supervisor. The data and information obtained will be present in a way that does not identify participants.

The interview might cause some physiological/emotional discomfort or distress on participants. If this condition occurs to you, the interview will be stopped. The researcher will ask about your condition and you will have option to continue or postpone the activities if you wish to do so. If your condition is severe, the researcher will offer to contact local support service such as the local Red Cross chapter through this support line: DKI Jakarta Red Cross: 021- 3906666.

The data obtained from the interview will be used to produce a master thesis, related to conference presentations and journal publications.

Thank you for taking your time to consider this invitation on participating in this research. If you have further queries about the research, please contact me at dpar547@aucklanduni.ac.nz.

If you have further queries, please contact:

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Debby Paramitasari Candidate for Master of Engineering in Disaster Management, Faculty of Engineering, The University of Auckland Private Bag 92019 Auckland Central, New Zealand Email: dpar547@aucklanduni.ac.nz	**Dr. JC Gaillard** School of Environment, Faculty of Science, The University of Auckland Private Bag 92019 Auckland Central, New Zealand Tel: +64 9 373 7599 ext.89679 Fax: +64 9 373 7434 Email: jc.gaillard@auckland.ac.nz	**Dr. David Hayward** School of Environment, Faculty of Science, The University of Auckland Private Bag 92019 Auckland Central, New Zealand Tel: +64 9 923 8454 Email: d.hayward@auckland.ac.nz

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Auckland 1142, New Zealand

PARTICIPANT INFORMATION SHEET

Individual Participants from Community

Project title:

Public Health and Disaster Risk Reduction: Understanding Similarities and Divergences in Jakarta, Indonesia

Supervisor: **Dr. JC Gaillard**

Researcher: **Debby Paramitasari**

Researcher Introduction

My name is Debby Paramitasari. I am currently enrolling on Master of Engineering in Disaster Management at the University of Auckland, New Zealand. I am conducting a research thesis on the topic "Public Health and Disaster Risk Reduction: Understanding Similarities and Divergences in Jakarta, Indonesia". This research is supervised by Dr. JC Gaillard.

Project description and invitation

This research aims to examine the systems particularly policies, actors, initiatives of both public health and disaster risk reduction using a case study in Jakarta, Indonesia. The research also seeks to figure out drivers and strategies used by public health field to achieve their success which could become some great sources of learning for future improvement of disaster risk reduction field.

This research relies on the participation from a various range of respondents from public health, disaster risk reduction, and community. Therefore, I would like to invite you to participate in this study in order to share your expertise, stories, and experiences about policies, actors, initiatives, and implementation of both public health and disaster risk reduction initiatives in your area. Your involvement will not only contribute to my master thesis, but also give the opportunity to learn and improve disaster risk reduction as well as public health at the same time. Your participation agreement in this research can be given by signing the attached Consent Form.

Project Procedures and Right to Withdraw from Participants

With your permission, I will conduct a face to face interview with you between 1st January 2019 and 28th February 2019. The interview will take a maximum of 60 minutes and will be conducted at a time and place which is the most convenient for you. You will have the option not to answer the question and may withdraw your participation at any time without any explanation. You also have the right to withdraw the information you provided to the research within 30 days after the completion of the interview. Moreover, upon your permission, the interview will be audio-recorded, and you will receive the transcript of the interview recording and 14 days will be given to you to edit the recording if you wish to do so.

Data storage/ retention/ destruction/ future use

Digital data of the research including audio recording, transcripts, and photographs of participants' drawings will be stored in the password-protected computer, backed up by a server, at the University of Auckland and will be deleted after six years. Hard file data of the research such as research note will be kept confidential and stored in a locked cabinet at the University of Auckland and will be deleted after six years. If requested, the summary document, thesis, and publication of the research will be made available for you.

Anonymity and Confidentiality

All information collected during the interviews and focus group discussion will be kept confidential and only discussed with my supervisor. The data and information obtained will be present in a way that does not identify participants.

The interview might cause some physiological/emotional discomfort or distress on participants. If this condition occurs to you, the interview will be stopped. The researcher will ask about your condition and you will have option to continue or postpone the activities if you wish to do so. If your condition is severe, the researcher will offer to contact local support service such as the local Red Cross chapter through this support line: DKI Jakarta Red Cross: 021- 3906666.

The data obtained from the interview will be used to produce a master thesis, related to conference presentations and journal publications

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If you have further queries, please contact:

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Researcher

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Private Bag 92019
Auckland 1142, New Zealand

PARTICIPANT INFORMATION SHEET

Focus Group Discussion Participants

Project title:
Public Health and Disaster Risk Reduction: Understanding Similarities and Divergences in Jakarta, Indonesia
Supervisor: **Dr. JC Gaillard**
Researcher: **Debby Paramitasari**

Researcher Introduction

My name is Debby Paramitasari. I am currently enrolling on Master of Engineering in Disaster Management at the University of Auckland, New Zealand. I am conducting a research thesis on the topic "Public Health and Disaster Risk Reduction: Understanding Similarities and Divergences in Jakarta, Indonesia". This research is supervised by Dr. JC Gaillard.

Project description and invitation

This research aims to examine the systems particularly policies, actors, initiatives of both public health and disaster risk reduction using a case study in Jakarta, Indonesia. The research also seeks to figure out drivers and strategies used by public health field to achieve their success which could become some great sources of learning for future improvement of disaster risk reduction field.

This research relies on the participation from a various range of respondents from public health, disaster risk reduction, and community. Therefore, I would like to invite you to participate in this study in order to share your expertise, stories, and experiences about policies, actors, initiatives, and implementation of both public health and disaster risk reduction initiatives in your area. Your involvement will not only contribute to my master thesis, but also give the opportunity to learn and improve disaster risk reduction as well as public health at the same time. Your participation agreement in this research can be given by signing the attached Consent Form.

Project Procedures and Right to Withdraw from Participants

With your permission, you will be asked to be actively involved in a focus group discussion (FGD) consist of 8-10 people between 1st January 2019 and 28th February 2019. The FGD will take 1-2 hours and will be conducted at a time and place which is the most convenient for participants. You will have the option not to answer the question and may withdraw your participation in focus group discussion (FGD) at any time without any explanation. However, it may be hard to withdraw the information you have provided due to the nature and participants' number of focus group discussion (FGD) activities.

Data storage/ retention/ destruction/ future use

Digital data of the research including audio recording, transcripts, and photographs of participants' drawings will be stored in the password-protected computer, backed up by a server, at the University of Auckland and will be deleted after six years. Hard file data of the research such as research note will be kept confidential and stored in a locked cabinet at the University of Auckland and will be deleted after six years. If requested, the summary document, thesis, and publication of the research will be made available for you.

Anonymity and Confidentiality

All information collected during focus group discussion will be kept confidential and only discussed with my supervisor. Confidentiality among focus group discussion (FGD) participants will be encouraged but cannot be guaranteed because of the nature of such discussion. Only audio recording, transcripts, photographs of participants' drawings, and researcher's field note will be taken away. The data and information obtained will be present in a way that does not identify participants.

The focus group discussion (FGD) might cause some physiological/emotional discomfort or distress on participants. If this condition occurs to you, the focus group discussion (FGD) will be stopped. The researcher will ask about your condition and you will have option to continue or postpone the activities if you wish to do so. If your condition is severe, the researcher will offer to contact local support service such as the local Red Cross chapter through this support line: DKI Jakarta Red Cross: 021- 3906666. Focus group discussion (FGD) will still be continued without your participation.

The data obtained from the interview will be used to produce a master's thesis, conference presentations and journal publications.

Thank you for taking your time to consider this invitation on participating in this research. If you have further queries about the research, please contact me at dpar547@aucklanduni.ac.nz.

If you have further queries, please contact:

Researcher	Supervisor	Head of School
Debby Paramitasari Candidate for Master of Engineering in Disaster Management, Faculty of Engineering, The University of Auckland Private Bag 92019 Auckland Central, New Zealand Email: dpar547@aucklanduni.ac.nz	**Dr. JC Gaillard** School of Environment, Faculty of Science, The University of Auckland Private Bag 92019 Auckland Central, New Zealand Tel: +64 9 373 7599 ext.89679 Fax: +64 9 373 7434 Email: jc.gaillard@auckland.ac.nz	**Dr. David Hayward** School of Environment, Faculty of Science, The University of Auckland Private Bag 92019 Auckland Central, New Zealand Tel: +64 9 923 8454 Email: d.hayward@auckland.ac.nz

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Researcher

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Appendix Two – Consent Form (CF)

a) Example of PIS given to:
   Leader/Manager of Government Agency/Non-Government Organization/International Organization/Community Group
b) Example of PIS given to:
   Staff/Member of Government Agency/Non-Government Organization/International Organization/Community Group
c) Example of PIS given to:
   Individual Participants from Community
d) Example of PIS given to:
   Focus Group Discussion Participants

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Private Bag 92019
Auckland 1142, New Zealand

CONSENT FORM

Leader/Manager of Government Agency/Non-Government Organization/International Organization/Community Group

THIS FORM WILL BE HELD FOR A PERIOD OF 6 YEARS

Project title:

Public Health and Disaster Risk Reduction: Understanding Similarities and Divergences in Jakarta, Indonesia

Supervisor: **Dr. JC Gaillard**

Researcher: **Debby Paramitasari**

I have read the Participant Information Sheet, have understood the nature of the research and why my staff/member will be participating in. I have had the opportunity to ask questions and have them answered to my satisfaction.

- I agree that my staff/member take part in the interview activity of this research.
- I agree to give permission to the researcher whose name appears in this form to approach staff/member of my community/agency/group to conduct interviews and focus group discussion.
- I give my assurance that participation or non-participation of staff will have no effect on their employment or relationship with the organization.
- I understand that participation in this activity is voluntary and all participants will have the right to withdraw their participation in any research activity at any time without giving any reason.
- I understand that the researcher will make every effort to ensure confidentiality of my participation in the research
- I understand that all information provided during this research will be kept in a secure place for six years before being destroyed.

Name:_____

Signature:_____ Date:_____

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New Zealand

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Private Bag 92019
Auckland 1142, New Zealand

CONSENT FORM

Staff/Member of Government Agency/Non-Government Organization/International Organization/Community Group

THIS FORM WILL BE HELD FOR A PERIOD OF 6 YEARS

Project title:
Public Health and Disaster Risk Reduction: Understanding Similarities and Divergences in Jakarta, Indonesia
Supervisor: **Dr. JC Gaillard**
Researcher: **Debby Paramitasari**

I have read the Participant Information Sheet, have understood the nature of the research and why I have been selected. I have had the opportunity to ask questions and have them answered to my satisfaction.

- I agree to take part in the interview activity of this research.
- I understand that my Leader/Manager has given an assurance that participation or non-participation of staff will have no effect on my employment or relationship with the organization.
- I understand that my participation in this activity is voluntary and I have the right to withdraw their participation in any research activity at any time without giving any reason. I also have the right to withdraw the information I provided to the research within 30 days after the completion of the interview.
- I understand that I may choose to not answer any question.I agree/disagree to being audio-recorded during the interview.
- I understand that I am entitled to request to stop the recording at any time.
- I know who I can speak to if I am worried, distressed or would like to ask questions about this project (contact details are on the Participant Information Sheet).
- I wish/do not wish to receive the transcript of the interview recording and have 14 days to edit the transcript. If the answer is affirmative, please send the transcript to this email address: _____

- I wish/ do not wish to receive any summary of finding. If the answer is affirmative, please send the transcript to this email address: _____
- I understand that the researcher will make every effort to ensure confidentiality of my participation in the research
- I understand that all information provided during this research will be kept in a secure place for a period of six years before being destroyed.

Name:_____

Signature:_____ Date:_____

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School of Environment
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New Zealand

The University of Auckland
Private Bag 92019
Auckland 1142, New Zealand

CONSENT FORM

Individual Participants from Community

THIS FORM WILL BE HELD FOR A PERIOD OF 6 YEARS

Project title:

Public Health and Disaster Risk Reduction: Understanding Similarities and Divergences in Jakarta, Indonesia

Supervisor: **Dr. JC Gaillard**

Researcher: **Debby Paramitasari**

I have read the Participant Information Sheet, have understood the nature of the research and why I have been selected. I have had the opportunity to ask questions and have them answered to my satisfaction.

- I agree to take part in the interview activity of this research.
- I understand that I have assurance from my Leader/Manager that my participation in this research will not affect my jobs and daily life.
- I understand that my participation in this activity is voluntary and I have the right to withdraw my participation in any research activity at any time without giving any reason. I also have the right to withdraw the information I provided to the research within 30 days after the completion of the interview.
- I understand that I may choose to not answer any question.I agree/disagree to being audio-recorded during the interview
- I understand that I am entitled to request to stop the recording at any time.
- I know who I can speak to if I am worried, distressed or would like to ask questions about this project (contact details are on the Participant Information Sheet).
- I wish/do not wish to receive the transcript of the interview recording and have 14 days to edit the transcript. If the answer is affirmative, please send the transcript to this email address: _____

- I wish/ do not wish to receive any summary of finding. If the answer is affirmative, please send the transcript to this email address: _____
- I understand that the researcher will make every effort to ensure confidentiality of my participation in the research
- I understand that all information provided during this research will be kept in a secure place for a period of six years before being destroyed.

Name:_____

Signature:_____ Date:_____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON **07 February 2019** for three years, Reference Number **022343**

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CONSENT FORM

Focus Group Discussion Participants

THIS FORM WILL BE HELD FOR A PERIOD OF 6 YEARS

Project title:

Public Health and Disaster Risk Reduction: Understanding Similarities and Divergences in Jakarta, Indonesia

Supervisor: **Dr. JC Gaillard**

Researcher: **Debby Paramitasari**

I have read the Participant Information Sheet, have understood the nature of the research and why I have been selected. I have had the opportunity to ask questions and have them answered to my satisfaction.

- I agree to take part in the focus group discussion (FGD) activity of this research.
- I understand that my participation in this activity is voluntary and I have the right to withdraw my participation at any time without giving any reason.
- I understand that the information that I provide during focus group discussion (FGD) cannot be withdrawn due to the nature and participants' number of focus group discussion (FGD) activities.
- I understand that I may choose to not answer any question.I agree/disagree to being audio-recorded during the focus group discussion (FGD).
- I understand that the audio recorder cannot be turned off unless all participants want to do so.
- I understand that only photographs of my drawings (without my name or my picture), audio recording, and the researcher's field notes will be taken away.
- I know who I can speak to if I am worried, distressed or would like to ask questions about this project (contact details are on the Participant Information Sheet).
- I understand that my name will be not used in any reports/presentation.

- I understand that the researcher will make every effort to ensure confidentiality, but I cannot be guaranteed that my identity and information provided in the focus group (FGD) discussion will be kept confidential due to the nature of this activity.
- I understand that all information provided during this research will be kept in a secure place for a period of six years before being destroyed.
- I agree to keep the information and the identity of the participants in this focus group discussion (FGD) confidential
- I wish/do not wish to receive a summary of finding, which can be provided to this email address: ___ _____

Name:_____
Signature:_____ Date:_____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON **07 February 2019** for three years, Reference Number **022343**