

**INTEGRATING DISASTER MANAGEMENT AND SUSTAINABLE DEVELOPMENT:  
FINDING THE ROLE OF NGOs IN THE POST-ERUPTION MERAPI 2010**

MASTER THESIS

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FACULTY OF SPATIAL SCIENCES  
UNIVERSITY OF GRONINGEN

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## **Abstract**

Through the concept of sustainable development, disaster management is delivered as a continuous process. Therefore, it is substantial to ensure the sustainability of the process as attempts to deal with the dynamics problems of the disaster management. As the process requires interactions among stakeholders in delivering the actions, hence a governance arrangement is substantial in the disaster management. While the governments play role as the main generator of the arrangement, this research reveals that the NGOs (Non-Governmental Organizations) play major part in supporting the disaster management process. Accordingly, this research aims to address whether the NGOs play such roles in dealing with the dynamics situation of the disaster management process. Through the lenses of sustainable development concept, this research explores the role of the NGOs in the disaster management by examining the case study of post-eruption Merapi 2010. Further, the ideal role of NGOs e.g. as bridging organizations, boundary organizations, and bargaining organizations are being challenged based on the case study. Eventually, this research concludes that the integrations of disaster management and sustainable development concepts can be formulated into two dimensions of the governance arrangement: working the disaster management in continuous and sustainable phases, and ensuring the continuity of the development initiatives in the disaster management.

***Key words: disaster management, sustainable development, NGOs, disaster governance***

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## List of Abbreviations

ACT	: Fast Action Response
APBN ( <i>Anggaran Pendapatan dan Belanja Negara</i> )	: State Budget
ASB	: Arbeiter-Samariter-Bund
Bappeda ( <i>Badan Perencanaan Pembangunan Daerah</i> )	: Regional Development Planning Agency
Bappenas ( <i>Badan Perencanaan Pembangunan Nasional</i> )	: National Development Planning Agency
BNPb ( <i>Badan Nasional Penanggulangan Bencana</i> )	: National Disaster Management Agency
BPBD ( <i>Badan Penanggulangan Bencana Daerah</i> )	: Regional Disaster Management Agency
BPPTKG ( <i>Balai Penyelidikan dan Pengembangan Teknologi Kegunungpian</i> )	: Volcanic Technology Development and Research Center
DIY ( <i>Daerah Istimewa Yogyakarta</i> )	: The Special Region of Yogyakarta
DPRD ( <i>Dewan Perwakilan Rakyat Daerah</i> )	: Legislatures
ESDM ( <i>Energi dan Sumber Daya Mineral</i> )	: Energy and Mineral Resources
FAO	: Food and Agriculture Organization
FPRB ( <i>Forum Penanggulangan Resiko Bencana</i> )	: Disaster Management Forum
Gol	: Government of Indonesia
IDEA	: Institute for Development and Economic Analysis
ILO	: International Labor Organization
IMDFF-DR	: The Indonesian Multi Donor Fund Facility For Disaster Recovery
IOM	: International Organization of Migration
KRB ( <i>Kawasan Rawan Bencana</i> )	: Hazard Zone
MDMC	: Muhammadiyah Disaster Management Center
NGOs	: Non-Governmental Organizations
PMI	: Indonesian Redcross
PVMBG ( <i>Pusat Vulkanologi dan Mitigasi Bencana Geologi</i> )	: Centre of Volcanology and Geological Hazard Mitigation
RP ( <i>Rencana Pembangunan</i> )	: Development Plan
RPJMD ( <i>Rencana Pembangunan Jangka Menengah Daerah</i> )	: Regional Short Term Development Plan
RPJMN ( <i>Rencana Pembangunan Jangka Menengah Nasional</i> )	: National Medium Term Development Plan

RPJPD ( <i>Rencana Pembangunan Daerah Jangka Panjang Daerah</i> )	: Regional Long Term Development Plan
RPJPN ( <i>Rencana Pembangunan Jangka Panjang Nasional</i> )	: National Long Term Development Plan
RR	: Rehabilitation and Reconstruction
RTRW ( <i>Rencana Tata Ruang Wilayah</i> )	: Spatial Plan
RTRWN ( <i>Rencana Tata Ruang Wilayah Nasional</i> )	: National Spatial Plan
SAR	: Search and Rescue
Shorea	: Small Home Empowerment of Rural Activists
SKPD ( <i>Satuan Kerja Perangkat Daerah</i> )	: Regional Working Units
SWOT	: Strength, Weakness, Opportunity, and Threat
Tagana ( <i>Taruna Siaga Bencana</i> )	: Disaster Response Team
UGM	: Gadjah Mada University
UNDP	: United Nation of Development Program
WB	: World Bank

# Chapter 1

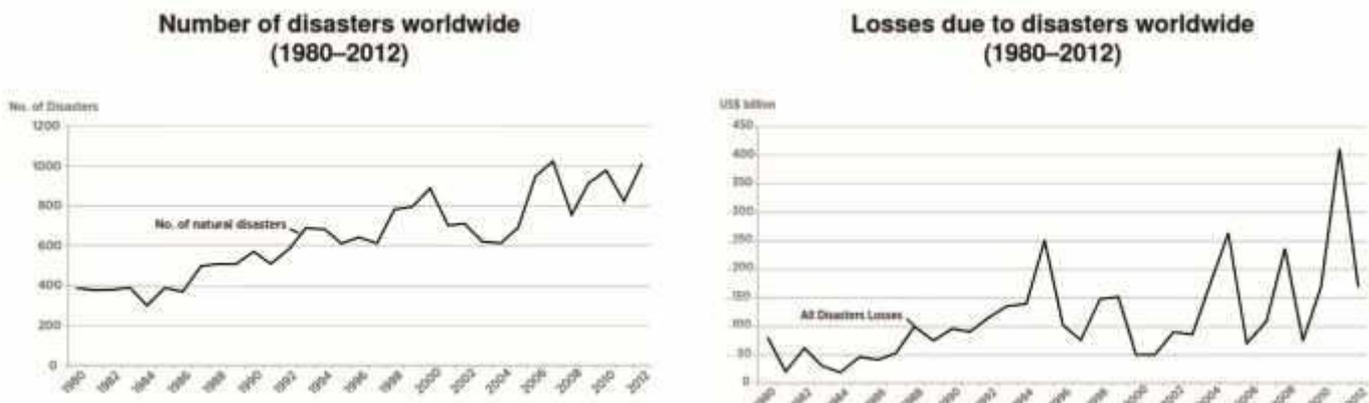
## Introduction

This chapter provides an illustration on the overall content of the research. It delivers the insight that the role of the non-governmental organizations (NGOs) is substantial in the disaster management. It brings notion that the integration of disaster management and sustainable development concepts is significant. First, this chapter elaborates the 'background' to explain why the issue is notable to be discussed. The elaboration of the background is being used to formulate the 'research problems' and the 'research questions'. Following, the 'research methodology' is presented to provide the methods and procedures in delivering the research. Finally, the chapter is accomplished by the elaboration of the 'thesis outline' which explains the framework of the overall research.

### 1.1. Background

In 2004, the 9.3 magnitude earthquake followed by a tsunami appeared in the Indian Ocean, which caused close to US \$11.4 billion of damage in 14 countries (World Bank, 2012). A year after, hurricane Katrina strike the northern Gulf Coast in 2005, caused US \$81 billion of damage and 1.800 people killed (Wei et al., 2014). Five years later, the biggest earthquake, 7.0 magnitude, in 2010 hit the Haiti, which caused over 230.000 people killed and US \$14 billion of damage (Wei et al., 2014). Globally, the total amount of the natural disaster in the world is increased for the last 30 years, followed by the increasing damage and losses (World Bank, 2012). The report represents a serious situation of the disaster impact in the human life. Moreover, it forces the urgency of further disaster management that is better than the previous efforts.

Diagram 1.1. Total number of disasters and losses from 1980–2012



Source: World Bank (2013)

Natural hazards can be considered a common phenomenon, due to the hazard as the result of the natural process of the nature. When the hazard comes without impact to the human life, then it is not recognized as a disaster (de Guzman and Unit, 2003). Natural hazards such as tsunami, earthquake, hurricane, typhoon, floods, and volcanic eruption are only seen as threats if it is potential in causing the damage and loss (Gaillard, 2007). The damage and loss appears as the result of the disaster e.g. collapsed building and infrastructure, damaged agricultural lands, and losses of livelihoods. This disaster occurs when the hazard meets the vulnerability and exposure to human life. The situation represents vulnerability as the low capacity of the people to cope with the effect of disaster. Therefore, the concept of resilience is being promoted to deal with the disaster. Through the lenses of disaster management, resilience represents the capacity to cope with, mitigate, or adjust the threats or avoid the harm (Pelling, 2003).

As the disaster causes devastating impacts on human life, efforts in reducing the impact of disaster is substantial to be pursued (Moe and Pathranarakul, 2006). By implementing a disaster management approach, human deliver efforts in coping with the disaster. It contains human interaction in addressing disaster policies into many broad development issues i.e. economic, environment, and social aspects. The emergence approach in finding the balance development among the economic growth, environmental improvement, and social sustainability has been triggered by the Brundlandt Report in 1987 as the baseline of the sustainable development concept (WCED, 1987). Further, based on the Johannesburg Summit or the WSSD (World Summit on Sustainable Development) in 2002, the term disaster is considered substantial in defining the sustainable development concept (Wisner et al., 2012). It portrays that the disaster has been incorporated as a consequence of development. In accordance with the emergence of sustainable development concept, integrating disaster management in the development programs is significant. Hence, the integration of disaster management and sustainable development can be formulated into two dimensions: working the disaster management in continuous and sustainable phases, and ensuring the continuity of the development initiatives in the disaster management. Through the approach of governance in the disaster management, each dimension will be elaborated more in chapter 2.

When disaster strikes, the continuous disaster assistance should be guaranteed to be addressed properly. The process contains of recovery progresses that also need to be dealt with the retarded development in all aspects of life. It requires disaster management, awareness, prevention, and local capacity building from all the involved actors. At the same time, it also requires capacity to deliver the relief and reconstruction activities (Osa, 2013). This situation represents the dynamic interactions in delivering efforts of the disaster management, while the failure of the actions can lead to the crisis: the extent of damages and human suffering. The failure can be rooted in many aspects e.g. the lack of governmental capacity in managing the disaster. The lack of the available sources of funding to finance the disaster has been reported as the main drawback in the government capacity, followed by the institutional and network failure (Freeman et al., 2003; Ahrens and Rudolph, 2006).

In dealing with the situation, literature suggests the role of the NGOs as the significant actors in overcoming the drawbacks of the disaster management. Together with the government, NGO is defined as the main generator of the disaster governance (Moe and Pathranarakul, 2006). As the stakeholders of disaster governance, the NGOs play roles in the decision making process (Nakagawa and Shaw, 2004). Here, the NGOs are seen as flexible entities to serves the multilevel and multi-scale of the governance (Affolderbach et al., 2012). Through the concept of environmental and sustainable development, the NGOs has been described as the boundary organizations, the bridging organizations, and the bargaining organizations (Brown, 1991; Affolderbach et al., 2012). The potential capacities of the NGOS are seen substantial in delivering the interactions and relationships among actors i.e. in the collaboration, coordination, and cooperation processes (Moe and Pathranarakul, 2006). Those argumentations support the ideal role of the NGOs as the determinant actors in the disaster management. Further, this approach will be challenged in chapter 5 when it is used in the analysis of the case study.

The discussion above illustrates the approach of sustainable development concept in attempts to deal with the dynamics problems of the disaster management. First, it delivers efforts in removing the drawbacks in the disaster management as well as ensuring the sustainability of the process. Second, it covers broader roles of the actors by defining the potential resources of the NGOs, and addresses it as an approach to overcome the limitation of the disaster management. As the role of NGOs is substantial, it raises further insights on how NGOs can play such roles in dealing with the dynamics situation of the disaster management. This insight influences the development of research problems and research questions in the next sections. Further, through the lenses of sustainable development concept, this research examines the role of the NGOs in the disaster management by examining the case study of post-eruption Merapi 2010 in chapter 4 and 5.

## **1.2 Research Problems**

One of the main drawbacks in the disaster management is the failure of the program implementation. For instance, there is a limitation on the resettlement program of post-eruption Merapi 2010 in Yogyakarta. The disaster policy of the resettlement has been attempted to provide safer location (new location) for the villagers, or the community, or the affected people by disaster. In the beginning, the planning on relocation was refuted by most of the villagers. It was more a top-down approach from the governments as the policy makers. This situation represents the gap of communication and understanding between the government and the villagers upon the disaster risk and the impacts to the human's life. After the first refusal, the government invites broader actors to be involved in the disaster management, includes the NGOs. Although most of the villagers agreed to be relocated today, the program still left some refusal in several villages.

While literature supports the role of the NGOs as substantial actors in the disaster management, it needs to be considered that each case study is context dependent. For instance, the limitation of disaster management

of post-eruption Merapi cannot solely represent problems of disaster resettlement in other locations. Each case is specific and unique, due to the different geographical location, different culture of the people, different planning system, and different institutional and political culture that leads to the different approaches of solution. By means, the space, time, location, culture, and the type of hazards and disaster determine the type of the emerging problems. As defined by Ostrom and Cox (2010), problems related to the environmental concerns are context dependent, and needs a solution with context specificity.

Accordingly, this research focuses the research problems on two points: 1) the gap between the theory and practice, whether the ideal role of NGOs in disaster management based on literatures is in accordance with the implementation based on case study, and 2) the gap of relationships between the governments (and the disaster policies) and the community (the affected people) that causes some drawbacks in the disaster management, and whether the NGOs play roles in overcoming the limitations.

### **1.3. Research Questions**

Based on the discussions above, the research questions are defined as follows:

Main question:

*“What is the role of NGOs in the integration of disaster management and sustainable development?”*

Additional questions, supporting the search on answering the main question:

*What comes as the integration of disaster management and sustainable development?*

*What are the characteristics of the NGOs in the disaster management?*

*How do the NGOs support the disaster management?*

*How are the relationships and interactions among NGOs going?*

*What are the primary nodes of the interactions among the stakeholders?*

### **1.4. Research Aims and Objectives**

By using the response operations of the post-eruption Merapi 2010 as a case study, the intent of this research is to understand the role of the NGOs in the integration of disaster management and sustainable development. Through enhancing the analysis and findings, this research **aims** to bring insights in: a) bridging the gap between theory and practice whether the NGOs play (the ideal) roles in the disaster management, b) defining the main drawbacks and limitations of the disaster management related to the involvement of the NGOs, and c) revealing the gap of relationships between the governments and the community, and examines whether NGOs play roles in overcoming the problems.

On search to the answer of the research question, this research sets the **objectives** as follows:

- a. To define the integration of disaster management and sustainable development

- b. To identify the disaster management cycle and the stakeholder analysis based on the case study
- c. To analyze the role of NGOs in the disaster management.

### ***1.5. Research Significance***

This research is intended to identify the role of NGOs in the disaster management by analyzing the disaster management cycle. Hence, the stakeholder analysis is being presented to portrays the involvement of NGOs in the planning and decision making process. The result is expected to generate recommendations and input for the national and local government programs in attempting to the integrated sustainable disaster management. Moreover, it is intended to give positive contribution for further development of related studies. Nevertheless, the results are also expected to provide recommendations for further spatial and development planning related to disaster management, particularly for developing countries.

### ***1.6. Research Methodology***

The methodology of this research is elaborated based on two approaches: inductive approach and case study approach. By definition, inductive approach refers to “the construction of theory by first observing aspects of social life and then seeking to discover patterns that may point to relatively universal principles” (Rubin and Babbie, 2007). In building the introduction chapter, a simple framework of thinking has been constructed, to address the understanding of sustainable development, disaster management, and the NGOs. Then, the basic insights are brought to build the guidance for the field research; it is used to build the questions of interview. In the field research, the questions are developed based on the response from the respondents. Hence, the results are being used to develop the theoretical framework and the analysis chapters.

The case study approach is defined as “the in-depth examination of a single instance of some social phenomenon”, or “the limitation of attention to a particular instance of something” (Rubin and Babbie, 2007). It is being applied in this research to examine the implementation of disaster management of post-eruption Merapi 2010 in Yogyakarta. The purpose of this approach is to support the descriptive and in-depth study of the research, and provide explanatory insights for the analysis stage upon the role of the NGOs in the disaster management.

The field research is being enhanced to identify the characteristics of involved NGOs in disaster management of post-eruption Merapi 2010. By presenting the data collection of in-depth interview and document review, this research attempts to gather information from the involved stakeholders i.e. governments, NGOs, and communities (affected people). Then, it applies a stakeholder analysis to identify the interactions and relationships between stakeholders, particularly for the governments and the NGOs. It leads to the findings of networking types and action strategies of NGOs in the disaster management., This research supports the argument that the stakeholder analysis is being applied to “make contribution in creating value through the

impact on the functions or activities of actors” (Prell et al., 2009). The ‘snowball method’ is also being used to gain information based on networking chains among stakeholders. Eventually, the results of the stakeholder analysis are being used as reference in developing the recommendations. Furthermore, elaboration about methodology of this research is presented in the chapter 3.

### **1.7. Research Outline**

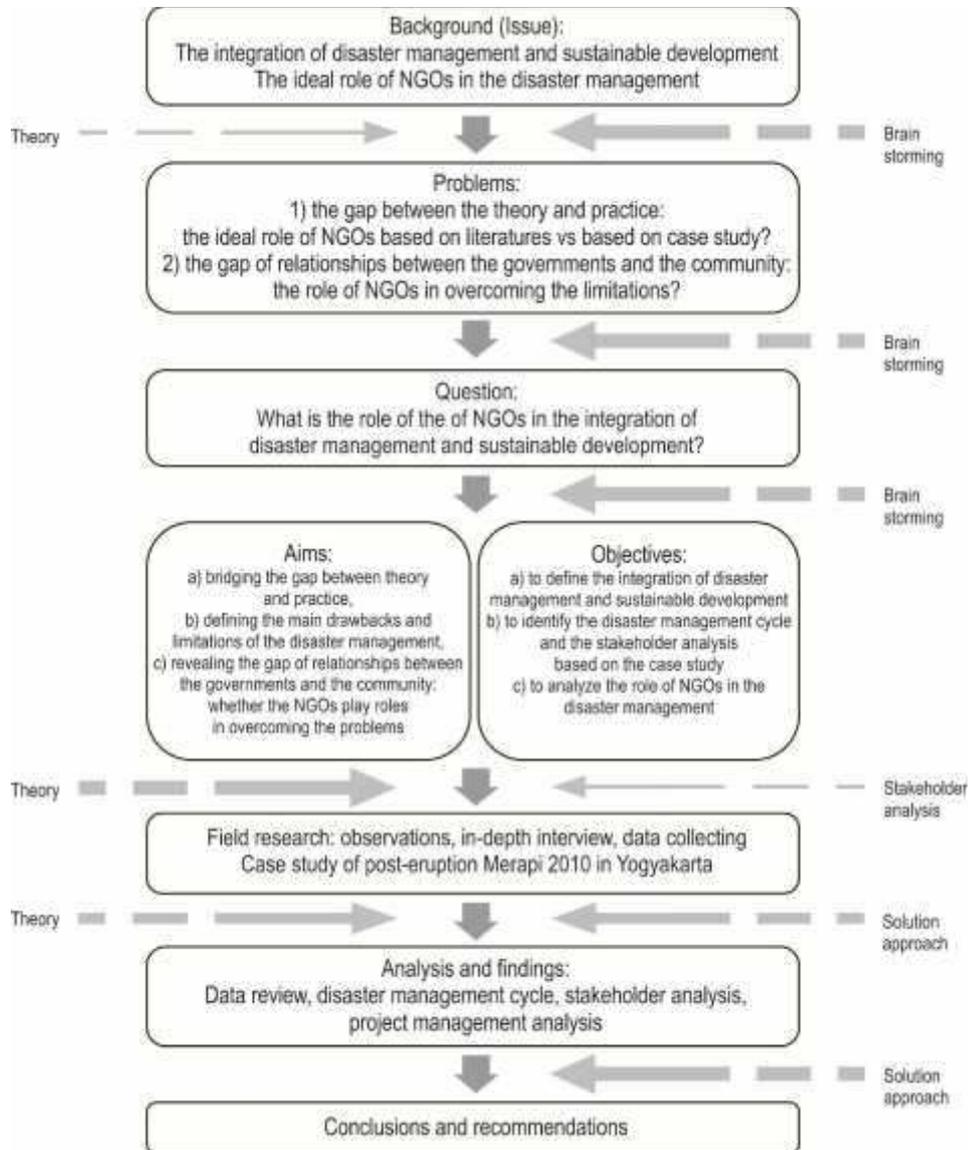
In general, this research develops the chapters based on the theoretical framework. The research on the theoretical understanding influences the development of the research. It starts with an introduction in chapter 1, the notion about the relationship among sustainable development, disaster management and the role of the NGOs influences the development of theoretical framework follows in chapter 2. Although there is insight on how the relationships are constructed, it is still in an abstract form. In particular, chapter 2 determines the integration between disaster management and sustainable development concepts. The results suggest that the approach of governance arrangement is significant to both concepts. Then, it promotes the substantial role of NGOs in the governance arrangement. In principal, both chapter 1 and chapter 2 are enriched with more theoretical context.

From chapter 3 onwards, the discussion is developed through the framework of solution approach, as a combination of theoretical development, data presentation, analysis, and synthesizes. In chapter 3, the research directs the discussion on the way the field research is being implemented. This research uses two approaches; inductive approach and case study approach. The chapter will explore more on how to address the data collection by in-depth interview for 16 respondents. It determines the ethical context on delivering the in-depth interview to the respondents. Moreover, it also enhances data collection based on document reviews e.g. reviews on laws, regulations, news, spatial and development planning documents, etc. Further, it determines the stakeholder analysis as a methodology to process the data. Continued with chapter 4 on case study, this research delivers the information of the post-eruption Merapi 2010. The chapter describes the existing disaster management to deal with dynamic situation of post-eruption Merapi in Yogyakarta. The discussion about the location, actors, culture, and institutions emphasizes the focus of discussion more about the particular than the general term.

While the information of case study is mostly presented in chapter 4, the rest is analyzed in chapter 5. Chapter 5 elaborates steps of analysis based on the framework of the disaster management process or cycle and networking stakeholder analysis. It is aimed to have a systematic result that can be used to formulate the findings. Eventually, the research is accomplished by conclusions and recommendations in chapter 6. This chapter is intended to deliver the synthesis of the research. It delivers argumentations in answering the research questions of the role of NGOs in the integration of disaster management and sustainable

development. Hence, the whole structure of the research is being presented in the diagram of research framework, as it can be seen below.

Diagram 1.2. Research framework



Source: Author (2014)

## Chapter 2

### Sustainable Development, Disaster Management, and NGOs

The initial notion working on this research is based on the relationship among sustainable development, disaster management and the role of the NGOs (Non-Governmental Organizations). Through this chapter, the research explores the notion based on theoretical approaches. On search to the integration of sustainable development and the disaster management, this paper starts the development of theories with two major concepts: *Conceptualizing Sustainable Development* and *The Disaster Management*. It delivers the theoretical approach on search to the integration of both concepts. Through the concept of governance arrangement, both concepts find similar characteristics. Therefore, the governance arrangement is being proposed as the form of the integration between the disaster management and sustainable development. As the governance refers to a set of function that carries the role of various actors, it represents the involvement of the NGOs in the disaster arrangement. Finally, the discussion of the term NGOs is being elaborated in the last section. It addresses the ideal approach of the role of NGOs in the disaster management arrangement that will be used to identify the role of NGOs based on case study in the chapter analysis.

#### **2.1. Conceptualizing Sustainable Development**

##### **2.1.1. The Components**

The early classic definition of sustainable development concept was forwarded by the Brundtland Commission in 1987. As it is stated, the appearance of *Our Common Future* (the Brundtland Report) declares that:

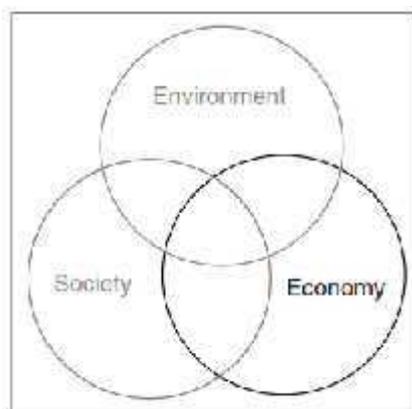
(Sustainable development is) "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (World Commission on Environment and Development, 1987)

From the previous definition above, the term 'sustainable development' is further addressed as 'maintaining the development overtime' (Sutton, 2004; Elliot, 2006). It refers to the active meaning of 'sustaining' that involves willingness, actions, and efforts in achieving the desired situation (Daly, 2006). From the definitions above, this research interprets the term sustainable development as efforts in delivering human needs which is held in a continuous phase. The action means it involves human and social participation, while the willingness interprets human efforts in pursuing the needs. Thus, it addresses the actions as the influence in creating the development in which involves environmental modification. Hence, this research supports the argument that the term sustainable development can be seen through different perspectives (Redclift, 1993). Further, yet many subsequent discourses recently emphasize the core perspectives of sustainable development as the environmental, economic, and social (Jabareen, 2008). Accordingly, this understanding is seen substantial in

this research and is brought in determining the integration of sustainable development concept in the implementation of disaster management approach, which will be elaborated more in further chapters.

Related to the three perspective in viewing the sustainable development concept, it is stated that the implementation of the concept should carry the three perspectives in a balanced-size, and contain overlapping relation of one another (McKenzie, 2004). This approach is represented by the overlapping circles, addressing that each position should be equal. The circles defines the sustainable development “as aiming to bring the three together in a balanced way” (Giddings et al., 2002). Moreover, it can be seen that the overlapping implies that any separation models can result different meaning as if one perspective gives priority to one or the other. Related to the further discussion upon the disaster management, this approach is substantial to be addressed as each perspective represents aspect that should be developed equally in each disaster management phase.

Figure 2.1. Three rings of sustainable development concept as overlapping circles



Source: Giddings et al. (2002), McKenzie (2004)

Approach on sustainable development frameworks represents efforts in making the ‘balance’ among the perspectives. However, the operation depends on the visions: what ‘sustainable development’ desires to achieve (Loorbach and Rotmans, 2006). While this chapter is aimed to build the notion on ‘the integration of sustainable development and disaster management’, therefore, the same frequency of vision from both concepts is substantial. Through the debates among sustainability perspectives, there is emerging notion that social sustainability is substantial, but being neglected. Hence, the next heading will explore more about the importance of this notion in the sustainable development context; to bring insight in further discussion about the disaster management.

### ***2.1.2 Social Sustainability, Social Innovation, and Social Capital***

The debates between economic and ecological concerns remain us on one aspect that is still neglected, the more difficult one to quantify: social sustainability (Chiu, 2003; McKenzie, 2004; Vallance et al., 2011; Parra et

al. 2013). Related to the concepts of development, social sustainability refers to “maintaining or improving the well-being of people in this and future generations” (Borrini-Feyerabend and Buchan 1997; Pugh 1996; Townroe 1996 in Chiu, 2003). Meanwhile, attempts to the environmental improvement defines social sustainability as “the social conditions necessary to support ecological sustainability” (Vallance et al., 2011). Accordingly, this research supports the arguments above that the social sustainability is substantial as another perspective in the sustainable development concept i.e. as function to involve society in the efforts of pursuing sustainability.

Through the concept of governance, social sustainability is described as society that is being involved in the socio-political negotiation (Parra, 2013). Here, it can be understood that, often automatically organized, societies are the one that come forward with the action of pursuing sustainability. The governance represents social sustainability dimension, which accommodates social as governance, and involve societies as active actors (Parra et al., 2013). Therefore, the role of governance is vital in the social sustainability dimension: it is the fundamental engine of the sustainability system (Parra et al., 2013). Supporting the thought by Parra, 2013, this research argues that social sustainability is substantial in achieving the balance of sustainable development perspective, and it should be put outside its subaltern status between the economic and ecological dimensions.

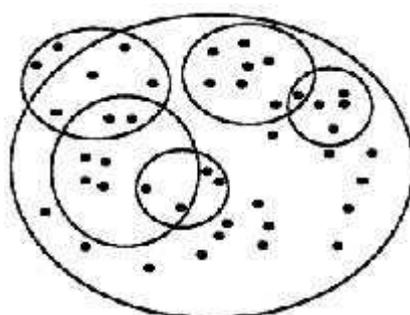
As a socio-political process, the governance, in accordance with the democracy and participation, accommodates the transitional process of the societies in deal with the sustainability dynamics and challenges (Parra et al., 2013). Social sustainability as governance, with the dynamic relations, embraces the range of the sustainability from power, political, and institutional context (Parra et al., 2013). By means, the dynamic relations enrich the complex and multi-dimensional character of the social dynamism. Hence, a renewed social dynamism is resulted through the social innovation that continuously maintains the social sustainability (Parra et al., 2013). It represents that governance built social sustainability with the source of social innovation. Accordingly, this research represents the social innovation as the asset to deal with the power, political, and institutional dynamism.

Through the concept of social innovation, social sustainability is able to assign the role of plural and divers actors in the sustainable development, ensuring the continuity between society-culture and nature (Parra et al., 2013). As it is stated, the dynamic of social relations i.e. interactions, associations, collaboration, participation, struggles, and conflicts are embedded in the dynamic structure of the governance (Parra et al., 2013). Here, this research represents that the social dynamic of the governance covers negotiations and institutional reorganizations at multi territorial level and spatial scale, creating interconnectedness among governance scales. Further, through spatial concept, by involving people and places, it generates sustainable development as a context-dependent (Morgan, 2011 in Parra et al., 2013). For instance, starts from the local and regional environment (level), sustainable development use the indicators to determine the ecological sustainability. Hence, sustainable community employs innovation and creation to its major changes by applying holistic

strategies and solutions on the operation and management of the existing communities, policies, decisions, and programs (Beatley, 1995). As Beatley, 1995 stated that “planning for sustainability seeks to reorganize the social, physical, and political-economic landscape in a fundamental way”, this research supports the meaning that building local capacity matters to the efforts in the community development. Hence, it can be concluded that in the sense of social sustainability, developing social capital is substantial as it serves in building the social innovation-as the generator of the sustainable development movement. Related to the further disaster management discussion, this social sustainability approach determines the way stakeholders addressing the governance arrangement as the fundamental engine of the sustainability system.

Furthermore, as the basis of social innovation, social capital can be defined as “networks together with shared norms, values and understandings that facilitate co-operation within or among groups” (Brian, 2007). By means, social capital is the link that builds the interaction between individuals and groups based on trust among each other (Fukuyama, 2001, Bridger and Luloff, 2001, Newton, 2001, Brian, 2007, Ettore, 2012). Then, trust as “encapsulate interest”-plays the central role as the main component of social (Newton, 2001), producing both positive and negative externalities (Fukuyama, 2001).Through the concept of the ‘radius of trust’, both traditional and modern societies share norm in the circle of people who built networks and bonds to achieve co-operative ends, ensuring weak or ties among the societies (Fukuyama, 2001; Newton, 2001). Hence, trust is important in society to pass innovation, information, and human resources (Fukuyama, 2001). As Newton, 2001 stated that “trust is one of the most important synthetic forces within society”. Accordingly, the approach of determining trust among stakeholders is substantial to be applied in this research, as it leads in defining the pattern of interactions among stakeholders. Furthermore, the interactions approach is then delivered to define the role of stakeholders in the system.

Figure 2.2. Networks of trust in society



Source: Fukuyama (2001)

In addition, it is stated that social capital depends on “trust, norms, and networks that build the collective participation” (Putnam, 1993 in Bridger and Luloff, 2001). The norms, including the trust, are related to the individual components and traditional values e.g. honesty, trustworthy, responsibility, keeping commitment,

reciprocity, reliable performances, civic engagement, voluntary organizations, solidarity, cooperation, and the like (Bridger and Luloff, 2001; Fukuyama, 2001). Eventually, social capital represents the interaction among political, social, and economic in the circle of norms (trust). Accordingly, this research support those arguments above that represent social capital as the basis of social innovation, and then both build the characteristics of the governance arrangement.

The term social sustainability, social innovation, and social capital are being elaborated in this research to support the notion that the governance play significant role in both context of sustainable development and disaster management. The discussion provides basic insights on the way social capital constructs the governance arrangement: through social innovation. Further, the notion about social capital and the relation to the governance context is proposed as a trigger in developing the analysis and findings of this research.

## ***2.2 Disaster Management***

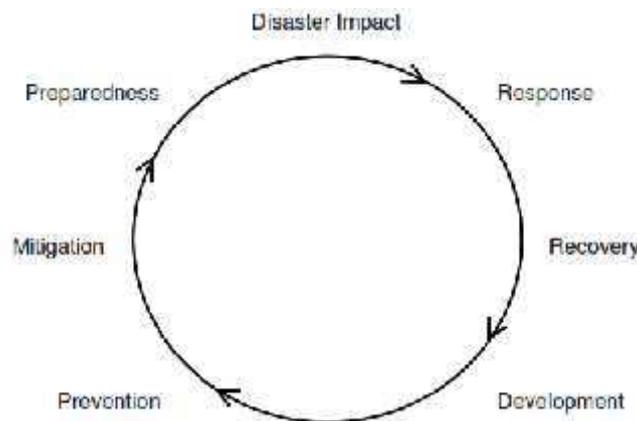
As it is mentioned in the previous chapter, natural hazards can be considered a common phenomenon, due to the hazard as the result of the natural process of the nature. When the hazard comes without impact to the human life, then it is not recognized as a disaster (de Guzman and Unit, 2003). Natural hazards such as tsunami, earthquake, hurricane, typhoon, floods, and volcanic eruption are only seen as threats if it is potential in causing the damage and loss (Gaillard, 2007). The damage and loss appears as the result of the disaster e.g. collapsed building and infrastructure, damaged agricultural lands, and losses of livelihoods. According to Wisner, 2003, disaster is commonly identified as “the trigger role of geo-tectonics, climate or biological factors that arising in nature, either as focus on the human response, psychological and physical trauma, economic, legal and political consequences” (Dynes et al., 1987, Lindell and Perry, 1992; Oliver-Smith 1996; Platt et al., 1999 in Wisner 2003). Those arguments represent that disaster causes devastating impacts on social, economy, and environment aspects that affected both individual and communal life. Therefore, efforts in reducing disaster’s impact is substantial (Moe and Pathranarakul, 2006).

Through the emergence concept of social resilience, efforts in dealing with disaster impacts have been delivered in many ways. Against vulnerability, movement in forcing resilience to the society is proposed as “the ability of communities to withstand external shocks to their social infrastructure” (Adger, 2000). It represents social resilience as the ability of society to mitigate the effects of disasters and address actions to minimize any social disruption (Bruneau et al., 2003). Therefore, this research supports that social resilience is substantial vision in the efforts of reducing disaster impact. It represents how the ability of actors in the society to cope with hazards stress, which can be facilitated through the disaster governance. Hence, the disaster governance needs to carry the capacities to manage resilience, which is influenced by the attributes of the governance e.g. participation, deliberation, and organizational features (Lebel et al., 2006). Furthermore, many approaches have been addressed to mitigate disasters at various levels. It shifts the paradigm from the post-disaster relief to pre-

disaster mitigation, preparedness efforts, and post-disaster reconstruction (Yodmani and Center, 2001; Nakagawa and Shaw, 2004). Aligned with the emergence of (state) government efforts, current approach also focus on the empowerment of local governments, civil societies, and non-governmental organizations (NGOs) in the decision making process (Nakagawa and Shaw, 2004). Through the approach of disaster governance, this research addresses disaster management as efforts in responding to deal with the impacts of disaster.

Determining disaster response in a systematic management is important, as it contributes as the key character of an integrated disaster management (Zhang et al., 2006). As a framework of a disaster management, the systematic phase is mostly represented in a circulated process (Carter, 1991; Alexande, 2006; Moe and Pathranarakul, 2006; Vasilescu et al., 2008). Referring to Carter (1991) and Vasilescu et al. (2008), an integrated-disaster management process or cycle can be divided into phases: 1) pre-disaster phase (including prevention, mitigation, and preparedness); 2) during the disaster (including emergency response, disaster countermeasures); and 3) post disaster phase (including recovery (rehabilitation and reconstruction) and sustainable development (redevelopment process) (Carter, 1991; Vasilescu et al., 2008). By means, comprehensive and integrated disaster management can be achieved by implementing all those components in a cyclic and continues process.

Diagram 2.1. The development models of disaster management process or cycle

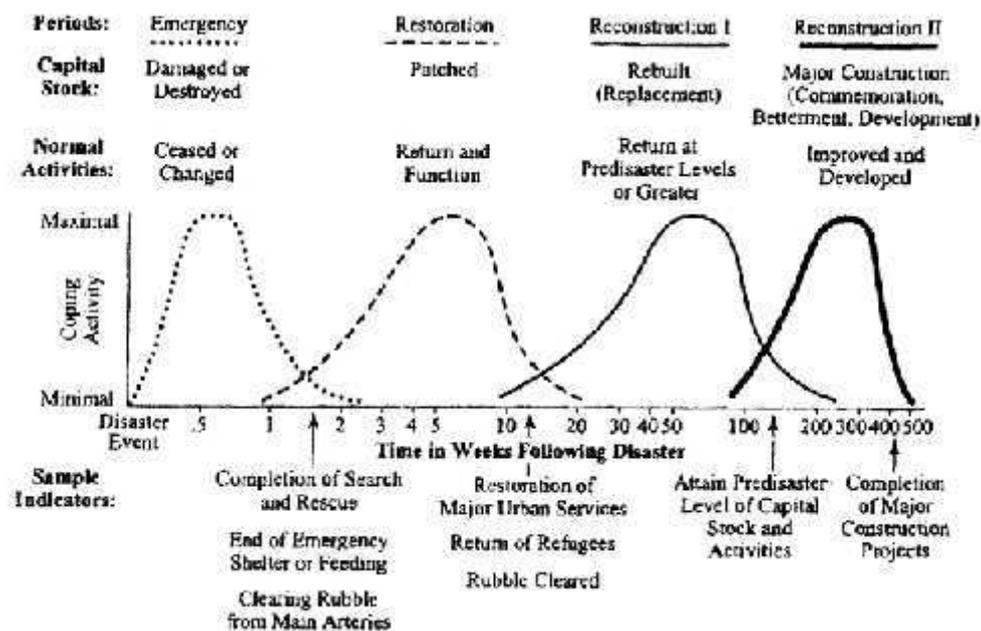


Source: Carter (1991) in Jaques (2007)

The circular process above represents a phase without definite start and end, which can be addressed in an overlap or transitional period. By means, this overlap period is substantial in serving the transitional time in order to prepare for the next phase. Therefore, this research supports the argument by Russell, 2005, that the disaster as a cycle or process is significant to be addressed by approach of an urban recovery model which is first described by Hass, Robert, Martyn, & Amaral in 1977. The model represents four stages of recovery i.e. emergency, restoration, reconstruction, and major reconstruction. By means, the management stages addresses disaster and recovery phases as ordered and knowable process (Russell, 2005). Related to the

sustainability concept, this research sees the transitional phase is important in the disaster management process. Further, it supports the argument that the overlap or transitional phase in the disaster cycle represents the concept of sustainability both in a continuum and inter-related activities, as well as without the start and end of each activities (Jaques, 2007). Accordingly, this research concludes that the integration of disaster management and sustainable development can be formulated into two dimensions: working the disaster management in continuous and sustainable phases, and ensuring the continuity of the development initiatives in the disaster management.

Diagram 2.2. Model of urban recovery for disaster management process



Source: Vale and Thomas (2005) in Russel (2007)

Related to the disaster management process, it is mentioned that the significant part is the links between the phases, and how to make it continuous and integrated (Zhang et al., 2006). Further, to identify whether the disaster management is delivered in a comprehensive and integrated process, it can be seen the characteristics as follows: 1) contain all types of natural disasters management (rather than a single types of disaster), 2) apply a disaster management process or cycle, 3) contain a holistic process, and 4) deliver performance-based disaster management (Zhang et al., 2006). The integration of these characters in a comprehensive manner directs a series of actions and instruments into the fields of planning, decision and policy making (Zhang et al., 2006). Therefore, to achieve an integrated disaster management, the process should incorporate not only governments but also civil society, private sectors, and communities (Freeman et al., 2003). Accordingly, this research supports the argument that it is substantial to focus the management on the interactions among

stakeholders includes the collaboration and coordination of multilevel, multidimensional, and multidisciplinary knowledge and techniques among stakeholders (Zhang et al., 2006).

Discussion about disaster management process is being presented in this research to provide guidance in mapping the disaster management phase upon the case study that will be elaborated more in further chapters. The analyses will determine the types and characteristics of the disaster activities and the involved stakeholders. Further, the result of the analysis is being used to build the findings.

### ***2.3. Governance: the Integration of Disaster Management and Sustainable Development***

The involvement of stakeholders includes the government in the disaster management brings the notion of disaster governance. Related to further discussion on the disaster governance, it should be notice first that the term 'government' and 'governance' have different meaning, and also differ with 'governing'. 'Governing' refers to "purposeful efforts to guide, steer, control, or manage (sectors or facets) of societies", while the 'governance' represents "the pattern that emerge from the governing activities of social, political, and administrative actors" (Jordan, 2008). On one hand, the 'government' is a "center the institutions and actions of the state", and on the other hand, the 'governance' "allows non-state actors e.g. business and nongovernmental organizations to be brought into analysis of social steering" (Jordan, 2008). It interprets the meaning that the government is an institution as a part of the governance. Therefore, instead of using solely the term 'government', this paper will use the 'governance' to represent the dynamic societal relationships among actors, and supports the previous argument that governance covers the whole range of institutions that involved in the 'governing' process (Jordan, 2008).

Related to the disaster, governance is a more inclusive concept: it applies a specific governance framework on the disaster management and risk reduction (Tierney, 2012). Here, the term disaster governance encompasses an institutional arrangement with the focus on the hazards management. As Tierney, 2012 explained that the concept of disaster governance emerges from the "function that may formerly have been carried out by public entities are now frequently dispersed among diverse assets of actors that include not only governmental institutions but also private-sector and civil societies entities" (Tierney, 2012). Thus, it addresses that the governance relationships consist of two arrangements: horizontal (involves actor networks in a certain local geographical context e.g. communities) and vertical (involves local and supra-local entities e.g. states, national, provinces, regions, international, global actors) (Tierney, 2012). It can be noted here that the relationships among actors cover the formal and informal rule systems and actor-networks at all levels. Through this theoretical framework, this research concludes that the actors, stakeholders, that involve in the governance covers broader types (types of institutions or organizations), levels (hierarchy), and scale (networks).

It is mentioned that the modes of governance contributes to determine the concept of governance for the sustainable development (van Zeijl-Rozema et al., 2008). In literature, the approach of governance for

sustainable development is presented as two modes of governance: hierarchies, and networks (Jordan, 2008). While the 'networks' mode defines "the participating actors are expected to work out on how to steer society for themselves", the 'hierarchical' mode aims "to instruct them on how to achieve greater coordination" (Jordan, 2008). In further chapters, both approaches with the characteristics and typologies are used as guidance in determining modes of governance based on the case study.

Supporting the previous argument, this research addresses that the successful implementation of disaster management represents an effective governance in the disaster governance (Tierney, 2012). Related to the good governance approach on the modes of governance (Jordan, 2008). It can be identified that the relationships among stakeholders can be delivered successfully if they work based on the characteristics of good governance: transparency and trustworthiness, predictability, participation, and accountability (Tierney, 2012, Ahrens and Rudolph, 2006). Further, related to the trust as one of the most important synthetic forces within society, it is substantial to deliver the good governance principles in mapping the disaster governance upon the case study of this research.

The discussion on the disaster governance brings the notion back to the sustainable development context. In the context of governance for sustainable development, Jordan, 2008 stated that "system of governance can and should be configured in ways that not only encourage societal dialogue, but also transform attitudes and beliefs in ways that actively facilitate sustainable development" (Jordan, 2008). Therefore, this research argues that social relationships is substantial, which is work in through collaboration and coordination framework. Thus, both are assigned in the context of governance: governance determines the framework of social relationships. As governance is the 'fundamental engine' of the sustainability system, it is vital to the social sustainability dimension (Parra et al., 2013). As social sustainability is generated by the appearance of social innovation, then, social capital is substantial in the sustainable development context. It brings notion to the relation between disaster governance and sustainable development, whether social capital plays role in the integrated disaster management. In other words, supporting the thought of Nakagawa & Shaw, 2004, this research argues that through the lens of sustainable development, social capital plays important role in the disaster management process.

#### **2.4. The NGOs (Non-Governmental Organizations)**

Through the emergence concept of governance, the term NGOs is developed. According to Martens (2002), the term NGOs emerged not by the definition, but by the principles and objectives of the relationship with the other entities. Thus, it is followed by many interpretations that the 'non-governmental organization' represents the term 'private organizations' (White, 1933 in Martens, 2002), or 'international pressure groups' (Meynaud, 1961; Willetts, 1982 in Martens, 2002), or 'voluntary agencies' or 'volas' (Ziegler, 1998 in Martens, 2002). Referring to Martens (2002), a simple definition of NGOs can be addressed as "NGOs are the formal

(professionalized) independent societal organizations whose primary aim is to promote common goals at the national or the international level” (Martens, 2002 pg. 10). On the other hand, this research supports the argument that it is difficult to find the ‘typical NGOs’, or even there is no such a thing, since the diversity derives from various aspects: the size, duration, range and scope of activities, ideologies, cultural background, organizational culture, and legal status (Princen and Finger, 2994 in Martens, 2002).

Definition above represents NGOs with the function as societal actors (multilevel and multi scale members, do not includes official (governmental) members), promoting common goals (promotion of public goods), can be professionalized (not-profit oriented), independent, and can be formal institutions (have organizational structure) (Martens, 2002). This interpretation is supported by, further definition that the NGOs is “an association, society, foundation, charitable trust, non-profit corporation, or other juridical person that is not regarded under the particular legal system as part of the governmental sector and that is not operated for profit” (Kilby, 2006).

Referring to the concept of governance, NGOs is seen as part of the governance that play roles as actors or stakeholders in the decision making process (Nakagawa and Shaw, 2004), as major mechanism in solving problems (Brown, 1991), and as key actors in the conflicts (Affolderbach et al., 2012). When the NGOs contributes in catalyzing the growth of a new institutional arrangement, it roles as the sources of innovation (Brown, 1991). It is in accordance with the concept of broad public participation in decision-making as a prerequisite for sustainable governance (Stringer et. al, 2006; Meadowcroft, 2004 in Parra et al., 2013). By means, the involvement of NGOs plays part to support the sustainable governance as the agencies (together with the governments), as the main generators of the governance (Moe and Pathranarakul, 2006). Because of having potential wide networks and various management type (from local to global), and the capability of producing global communication techniques, NGOs is seen as flexible entities to serves in multilevel and multi scale governance (Affolderbach et al., 2012).

Through the concepts of environmental concern and sustainable development, NGOs is seen in his research through other similar viewpoints. In environmental context, NGOs is seen as scientific ‘boundary organization’ which establish empirical foundations for debate that are acceptable and credible to all parties (Affolderbach et al., 2012). Here, it plays tasks in evaluating scenarios, advising the decision makers, and mediating interests among multiple groups (Affolderbach et al., 2012). Moreover, it is also seen as a ‘bargaining organization’ which contributes in both Formal and informal interactions among entities (Affolderbach et al., 2012). Meanwhile, the sustainable development concept represents it as ‘bridging organizations’ which bring together constituencies that are divers on many dimensions but having the same interests (Brown, 1991). It is constituted of various types of entities e.g. associations, networks, cross sector partnerships, political coalitions, social movements, and community participation (Brown, 1991). Then, Brown, 1991 summarized it into points, that NGOs plays role as “conduit for ideas and innovations, as source of information, as a broker of resources, as a negotiator of deals, as a conceptualizer of strategies, and as a mediator of conflict” (Brown, 1991).

Moreover, the existence of NGOs in the sustainable development context is substantial, since it has single-minded focus on environmental values as the sustainability vision, and take the environmental development as the scope of work (Affolderbach et al., 2012).

Related to the governance, it is defined that governance with organizational and institutional context is important element in the concept of sustainability (Brown, 1991). It represents that the innovation that is brought by the governance is determinant. The preservation and expansion of successful innovation often depends on the linkages between the implementation and the ability of the governance in delivering the projects (Brown, 1991). This is when all actors play part in the process i.e. government agencies, non-governmental organizations, voluntary, religious organizations, and international development agencies (Brown, 1991). It emphasizes the necessary of NGOs as social institutions to create adapting institutions that fit with any social demands.

The form of disaster governance is shaped by many aspects: social, economic, and political forces (Tierney, 2012). It represents that each actors involved in the disaster governance brings their own visions, goals, purpose and interests. This research supports that besides the government (as state-based organizations) that serves as the core actors in disaster governance, the NGOs also set impacts to the governance arrangements. The institution of NGOs (as civil society) that has growth from local to international and global scale has their own characteristics in delivering the arrangement. Many international NGOs work with formal relationships in the governance, i.e. the World Bank, the United Nations, and the Red Cross. Compared to the national and local organizations, international-level organizations tend to have more enormous human and technical capacity to implement their intended purposes and support other organizations (Djalante, 2012). Meanwhile, there are also numerous local NGOs that work without formal relationships (Eriksson and Sadiwa, 2008). Through the viewpoint disaster risk management, most of NGOs work for the efforts to promote and protect human rights, including the humanitarian aids (Eriksson and Sadiwa, 2008). While there are plenty images of the role of NGOs in the success of humanitarian aids delivery (Twigg and Steiner, 2002), in fact, they often solely serve the disaster activities based on certain context and scale (Tierney, 2012). For instance, they lack of accountability to their constituencies, governments, communities as the recipient of the aids, and public (Kilby, 2006). Further, it influences the fragmented and unbalanced disaster governance regime (Tierney, 2012). It is potentially leads to the underdevelopment and failure of disaster management governance, since it is rooted in the lack of resources (governance structure) in addressing comprehensive disaster management (Tierney, 2012, Ahrens and Rudolph, 2006).

As it is stated by Twigg and Steiner (2002), the human factor in the structural of NGOs has important role to determine the success or failure of the governance arrangement. On one side, they are substantial figures in bridging gap between policy (disaster management plan) and operational practice (disaster management implementation) (Twigg and Steiner, 2002). On the other side, the success on delivering the function is

dependent on the individual characteristics and culture (Twigg and Steiner, 2002). By means, the individual aspect is substantial in forming the performance of the NGOs e.g. the time persons have been in the organization, the personality, and personal network (Twigg and Steiner, 2002). Furthermore, it influences the ability of NGOs in penetrating policies in multilevel and multi-scale governance (e.g. involved in the planning, decision and policy making process), incorporating the structures and system in the operational level (e.g. involved in the disaster risk assessment), performing monitoring and evaluation phase of disaster management (e.g. poor project documentation) (Twigg and Steiner, 2002).

In the context of humanitarian aids, the function of NGOs is closely intertwined with the term of collaboration, coordination, and cooperation (see: table 2.1.). By means, NGOs plays part in the relationships among various types of associations, networks, cross sector partnerships, political coalitions, social movements, and community participation in the governance arrangement (Brown, 1991). Here, NGOs as bridging organizations are resembling the societal dynamic changes as referent organizations (linking partners into inter-organizational alliances), intermediate structure (filling the gaps between large-scale institutions and individuals), and held the coordination structures (carrying out the strategies of inter-organizational collectives) (Brown, 1991). For instances, it was United Nation for Disaster Risk Reduction (UNISDR) that has been mandated to be the focal point within the UN systems in coordinating and ensuring synergies among disaster risk reduction (DRR) activities (UNISDR, 2011b in Djalante, 2012) through four key activities: coordinating, campaigning, advocating and informing different aspects of DRR (UNISDR, 2011b in Djalante, 2012).

Table 2.1. NGOs in the framework of interactions: cooperation, coordination, and collaboration

<p><b>Cooperation</b> between entities usually manifests as a primarily verbal dialogue and takes place in informal settings. An organization can present a need that another organization could satisfy without a formal contract or agreement (Hord, 1986). A typical scenario of the interaction takes place at the field level, when staff from different NGOs share resources (i.e. online time), skipping any formal procedure. Cooperation activities generally do not interfere with the autonomous programs of the participants. Hence, there are no risks or loss of independence with this kind of agreement (Mattesich, Murray-Close, &amp; Monsey, 2001).</p>
<p><b>Coordination</b> is more formal than cooperation. It can be considered as a step toward further and more enhanced cooperation. It takes place when the NGOs find that their individual goals are similar, so they can work together on “their separate, yet compatible, missions” (Czajkowski, 2007, p. 2). Organizations are more involved in the planning of activities under the coordination rubric. There are more risks associated with coordinated, as opposed to cooperative activities because organizations commit resources and the result of their efforts might be beneficial for only one of the parties. Most coordination efforts do not alter individual organization authority, but it involves a form of central power that can add complexity to the decision making process (Mattesich, Murray-Close, &amp; Monsey, 2001).</p>
<p><b>Collaboration</b> takes place when NGOs share authority and responsibility for planning and implementing an action to solve a problem. Stakeholders “engage in an interactive process, using shared rules, norms, and structures, to act or decide on issues related to that domain” (Wood &amp; Gray, 1991). Compares to cooperation, collaboration means working together on a specific task, while cooperation is working on independent tasks towards a common goal (Hveinden, 1994).</p>

Source: Saab et al. (2008)

Furthermore, Brown, 1991 explains that several strategies by NGOs for achieving the successful innovations and networks can be determined as: effective local organizations (building local organizations as key issue in sustainable development), creating horizontal linkages across organizational and sector differences, and building vertical linkages. By means, the NGOs enable local participation on policy making, by enabling grassroots influences on regional and national policies that shape long-term development incentives (Brown, 1991). In this terms, the interactions, relationships among actors occur horizontally (on the same geographical scale) and vertically (across different scales: global, regional, national, and local) among multi-stakeholders platforms (Djalante, 2012).

From the approach of the ideal term of NGOs above, it could be noted that the relationship between NGOs and disaster management: NGOs plays important role in giving assistance and support to the governance arrangement in the implementation of policies and strategies of disaster management. Hence, the efforts continue to exist in a way of achieving the long-term period of sustainable development in the society. Accordingly, this research supports the argument that in a way of achieving sustainable development of disaster management, all involved-actors need to be involved the decision and policy making, as well as implementing the strategic planning into actions (Lizarralde et al., 2010). By means, this research emphasizes that the involvement of NGOs in the disaster management is substantial.

## Chapter 3

### Research Methodology

This chapter presents the methodology of qualitative research to elaborate the role of NGOs in the disaster management of post-eruption Merapi 2010. It defines the research methodology based on two approaches; deductive approach and case study approach. While the deductive approach builds the framework of thinking of the research, the case study approach delivers the technical methodology of data collection and analysis. The methodology of qualitative data collection is applied in the concept of field research. Through an in-depth interview and secondary data collections, information is gathered to examine the role of NGOs in the disaster management process. The research also concerns with the importance of the ethical research, which will be elaborated in accordance with an in-depth interview. Finally, the discussion is covered up by the elaboration of the framework analysis, which is addressed through two approaches: disaster management process or cycle analysis, and hierarchical and networking stakeholder analysis.

#### **3.1. Deductive Approach**

The deductive approach is used to describe the wheel of research in this study. By the definition, 'deductive approach' refers to "the logical model in which specific expectations of hypotheses are developed on the basis of general principles." (Rubin and Babbie, 2007). The research enhances the deductive approach which moves the general term into particular term. A general principle theory is initially being constructed as guidance to enhance the field research. It begins with a general (vague) notion that there is integration between disaster management and sustainable development concepts. It is followed by the initial hypotheses that the integration is in the governance arrangement, which NGOs play role inside. A simple framework of thinking has been addressed to construct the understanding of sustainable development, disaster management, and the NGOs. It is aimed to build initial hypotheses and general principle for guiding the research. Here, deeper and detail elaboration is not constructed yet. Then, the general insights are brought as guidance for the field research process. It is used to build the questions of interviews addressed for the governmental institutions, NGOs, and communities (affected people by disaster). In the field, questions are developed based on empirical evidence and observations. Besides addressing the interview as primary data collection, the research also organizes secondary data collection e.g. laws, regulations, spatial planning documents, development documents, notes, agreement, books, journals, and news. Any findings on field research i.e. observations and empirical notions are being used to develop the theories into particular term. Then, the analysis is developed based on the theories and empirical findings from the field research with aims to answer the research questions. At this stage, an initial hypothesis can be rebuilt in accordance with the findings. The results of the analysis and

findings are being applied to formulate the conclusions and recommendations, which will use the general point of view in delivering the discussion. It represents the wheel rotation of the deductive model which moves from the particular back into the general terms.

Table 3.1. The deductive approach: definition and research application

Qualitative research	Definition	Research application
<b><i>Deductive approach</i></b>		
Purpose of research: interpretive, explanatory, deductive approach	Test a theory's predictions or principle; elaborate and enrich a theory's explanation; extend a theory to new issues or topics; support or refute an explanation or prediction; link issues or topics with a general principle; determine which of several explanations is best (Neuman, 2006).	This research begins with theoretical framework: there is integration between sustainable development and disaster management concepts. It starts with the governance arrangement, and the NGOs play roles inside. An early (preliminary) assumption can occur from a pre-field research. The overall field research is accomplished to complete the refusal or support of previous theories/explanation. The field research is intended to examine the role of NGOs through the perspective of disaster management and sustainable development.

Source: Neuman (2006), Author (2014)

### 3.2 Case Study Approach

As sustainable development and disaster management concepts deal with the dynamic relations, it is involved in the complex and multi-dimensional character of the social dynamism. It is argued that "in order to understand a complex issue, (in-depth) case-study research is necessary" (Flyvbjerg, 2006). Therefore, this paper addresses case study approach as efforts to deal with the complex societal problems in the disaster management. The case study approach is substantial to enhance the initial vague notion and hypotheses on the role of NGOs in the integration of disaster management and sustainable development.

By the definition, case study approach refers to "the in-depth examination of a single instance of some social phenomenon", or "the limitation of attention to a particular instance of something" (Rubin and Babbie, 2007). A case study is useful in building theories and hypotheses since it gives new ways of understanding the data (Eisenhardt, 1989). Moreover, it is involved in "converging the construction of definitions, measures, and framework for structuring the findings" (Eisenhardt, 1989). Referring to the case of post-eruption Merapi, this research addresses the case study approach to examine both social and physical phenomenon. It covers both the social issue in the disaster management and the physical phenomenon of the hazard event i.e. the volcanic eruption. Approach to examine the physical phenomenon is seen necessary due to the effect of the hazard that also caused the social issue. While the disaster management represents the response of the dynamic situation in the society, the activities and physical condition of Mount Merapi represent the hazard events. The research procedures includes hypothesis testing, theory generating, naturalistic generalization, and synthesizing the case (Johansson, 2003). It is intended to support the descriptive, in-depth study and explanatory insights for the analysis stage. Further, this research delivers the combination data collection (multiple data collection methods)

of archives, interviews, and observations, which represents the characteristic of the case study (Eisenhardt, 1989).

Table 3.2. The case study approach: definition and research application

Qualitative research	Definition	Research application
<b>Case Study approach</b>		
Method of data collection	Field research (direct observation of events in progress) by watching (observation) and listening, taking notes, maps, draws, documentary (photograph), site visit, in-depth interview, documents collection (softcopy/hardcopy) (Neuman, 2006).	<p>Observation is being delivered to the disaster area, 2-3 villages is taken as the location of observations. The main activity is to see the condition of affected area with the comparison before, the event, and after the hazard occurred.</p> <p>Documents that are collected includes laws, regulations, spatial planning and development documents, theoretical books, agreements, historical notes, media release, news, that are being collected through site visit, correspondence, web browsing, etc.</p> <p>In-depth interview is being delivered to 16 stakeholders with various backgrounds: governments, NGOs, local communities/residents/villagers. Most of them are being approached through field research. Due to the time limitation of the field research (3 weeks in the fields), the rest of the data required (the lack of data) is followed up through email correspondence.</p> <p>By using snowball method and preliminary stakeholder analysis, in-depth interview is being enhanced to gain data from respondents. The expected information is related to the relation/interaction among stakeholders, the networking system, and performance of the stakeholders. The result is then being used to establish the analysis and findings. The researcher applies in-depth interview to go beyond what is explicitly seen or said by the respondents to what is meant or implied.</p>
Data Analysis	<p>Coding: organizing data into categories based on concepts, similarities, features; to formulate further definitions; ideas and evidence are mutually interdependent.</p> <p>Comparing; finding similarities and differences</p> <p>Descriptive: explains certain circumstances based on theories.</p> <p>Analogies: statement of two objects or events that are similar each other (Neuman, 2006).</p> <p>Stakeholder Analysis:            On policy research fields: "as a way of generating information on the "relevant actors' to understand their behavior, interests, agendas, and influence on decision-making processes" (Brugha and Varvasovsky, 2000 in Prell et al., 2009)            On political science fields: "is used to work more effectively with stakeholders, facilitate transparent implementation of decisions or objectives, understand the policy context, and assess the feasibility of future policy options" (Brugha and Varvasovsky, 2000 in Prell et al., 2009)            On natural resources management fields: "focused on understanding power dynamics and enhancing the transparency and equity of decision-making in development projects" (Prell et al., 2009)</p>	<p>Results of interviews is being coding into features based on three key terms: sustainable development, disaster, and NGOs. The manual coding is being prepared in a simple framework. The features are also combined with some information from other related documents (laws, regulations, etc). Data coding is being used in the stakeholder analysis.</p> <p>Descriptive, analogy, and narrative analysis are being used in developing stakeholder analysis and findings.</p> <p>This research enhances stakeholder analysis in order to find the key stakeholders (of the NGOs) in the governance structure, by examining: the interactions/relationships among stakeholders (based on hierarchical and networking frameworks) and activities done by stakeholders (based on the disaster management process or cycle). The analysis is intended to represent the characteristics of the disaster governance i.e. the types of interactions (collaboration, coordination, and cooperation), the formal-informal relationship, the networks, performance, tasks, the direct-indirect relations, and the top-down or bottom-up interaction.</p> <p>At the beginning (before the field research, preliminary stakeholder analysis is being constructed based on theories and existing planning/development documents. In the analysis stage, the framework is developed based on findings from the field research.</p>

Source: Neuman (2006), Prell et al. (2009), Author (2014)

### *3.2.1. Field Research: In-depth Interview and Stakeholder Analysis*

The field research represents the implementation of the case study approach. It examines the case study with a mission to search the characteristics of involved NGOs in disaster management of Merapi eruption. By applying the data collection of in-depth interview and document review, this research attempts at gathering information from the involved stakeholders i.e. governments, NGOs, and communities (affected people by disaster). Afterwards, it applies a stakeholder analysis to identify the interactions and relationships among the stakeholders, particularly between the governments and the NGOs. It leads to the findings of networking types and action strategies of NGOs in the disaster management. Here, this research supports previous argument that the stakeholder analysis is being addressed to make contribution in creating value through the impact on the functions or activities of actors (Prell et al., 2009).

#### *3.2.1.1. In-depth Interview*

The field research in this study begins with the activities of data collection i.e. observations and listening, taking notes, maps, draws, documentary (photograph), site visit, in-depth interview and document collection (softcopy or hardcopy). The major activities are collecting the documents and the in-depth interview. Documents consist of national laws and regulations, spatial plan and development documents, action plan documents, theoretical books and journals, news from media, and transcript of interviews. The documents gained from Internet browsing, interviewing the stakeholders, finding books in library, and email corresponds with the sources. Before holding the interview, this research arranged preliminary literature review and stakeholder analysis. It is taken to build preliminary hypotheses upon the topic of the research. The information is then brought into the field research. The gap of information between the preliminary hypotheses and information based on the field research is being captured to be analyzed in the analysis stage.

In the field, the in-depth interview delivers unstructured, nondirective, and open-ended questions, and interest in responses that encourages more collaboration (Neuman, 2006). It consists of activities such as asking questions, recording, noting, expressing interest and response, and listening. Related to the case study of post-eruption Merapi, the in-depth interview is delivered to gain information related to three key terms: sustainable development, disaster management, and NGOs. The key terms are determined into features that are used to build the questionnaire guidelines of interview (see: Appendix A). Furthermore, it is also used in the coding process of transcribing the interview (see: Appendix B). The interview guideline is used as a manager for the interviewer in controlling the interview session. Referring to the nondirective character of the in-depth interview, it has potential flow to be developed in any direction to gain deeper information about certain issue. Then, it is substantial for the interview to have this guideline in order to manage the time, session, and substance of the interview.

The interview addresses three types of respondents: governmental agents, communities (villagers/residents), and NGOs' agents (for list of respondents, see: Appendix C). It represents the types of entities that are involved in the disaster management of post-eruption Merapi 2010. The selected types of governmental agents represent the different level of governmental institutions based on the stakeholder analysis. The selected NGOs represent the organization that is frequently mentioned by the governmental agents. Here, the research enhances the snowball method in searching for the next key persons or organizations based on previous information from respondents. This method is applied to identify the form, pattern, and networking system of NGOs in the disaster management. Some of the NGOs are being selected randomly, depends on the networking resources of the interviewer. This is also applied in selecting the types of the communities. Due to the lack of time in the field research, some respondents are served by 'correspondences interview' through email. The interview here represents the adapted style; it is not a direct and live conversation, but more about asking and answering written questions. As a start, the interviewer sends questions based on the interview guideline. Further, subsequent questions are delivered based on the previous answers. If the answer is sufficient, then the subsequent questions could be unnecessary.

In dealing with many correspondents, all of whom with different backgrounds, it is important to organize the field research with serious ethical principle. The results and privacy of respondents, especially from the interview process, should be maintained wisely in the research. To cope with moral ambiguity (Vanclay et al., 2013), this research facilitates the moral obligation and responsibility with providing the consent form for the respondents (see: Appendix D). This form is the function of understanding between the interviewer and the respondents. It is used to address the interview process, the information processing, and the needs of using the materials for the general public.

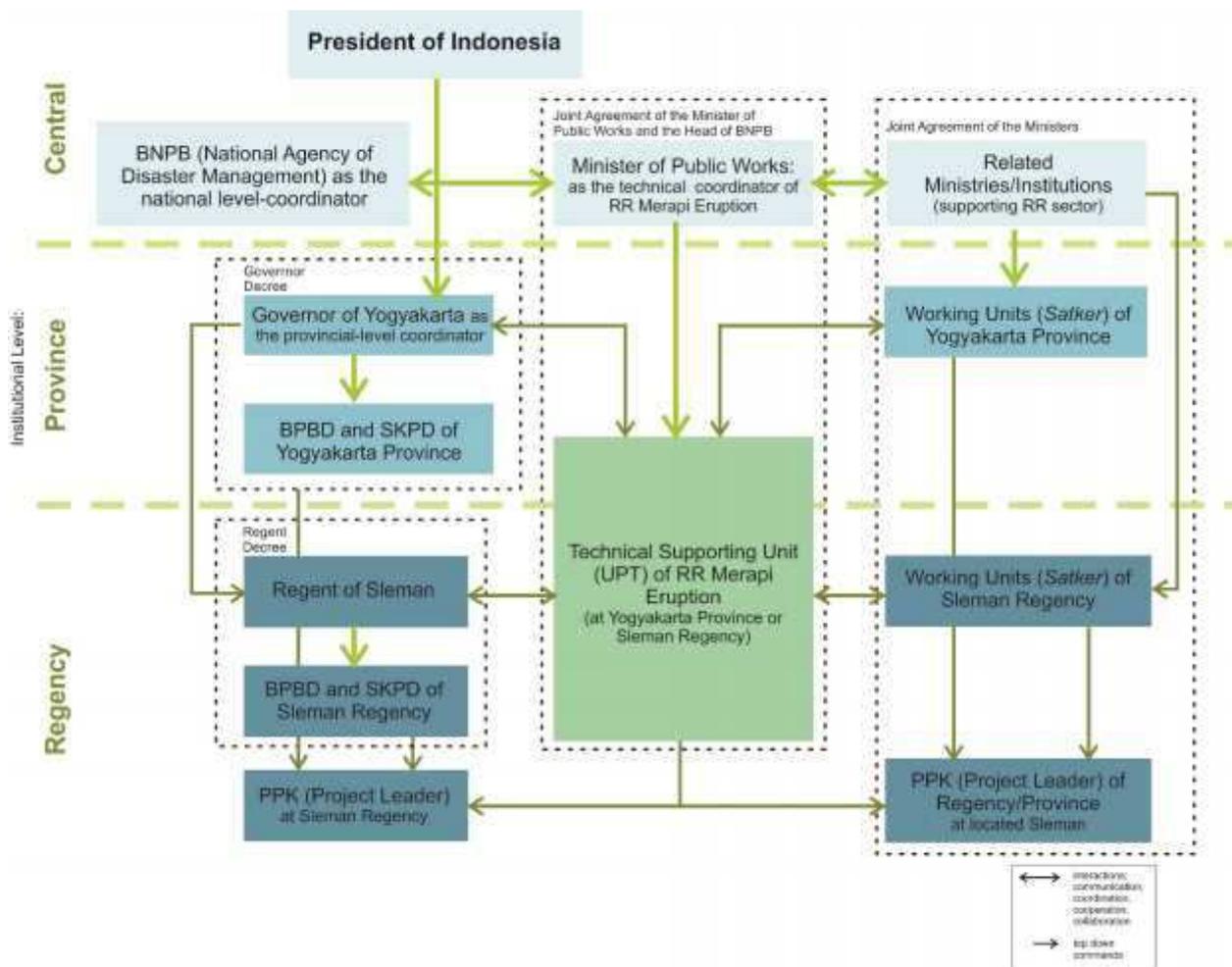
### *3.2.1.2. Stakeholder Analysis*

The stakeholder analysis is being applied in this research to map and identify the involvement of the stakeholders in the structure of the disaster management of post-eruption Merapi. It focuses to define the key stakeholders of NGOs in the disaster management. It is delivered by examining the interactions and relationships among stakeholders (based on hierarchical and networking framework) and the activities performed by stakeholders (based on the disaster management process or cycle). The interactions and relationships among stakeholders are necessary to be identified as it represents the way the decision making process is delivered. As it is argued by Kapucu and Garayev (2011), determining the appropriate types and style of interactions in the emergency (disaster) management is substantial in order to deliver the effective decision making process. Based on the case study, it is important to reveal the involvement of NGOs in the decision making process. Hence, it can be analyzed the role of the NGOs in the overall disaster management process. Through the lenses of interactions among the stakeholders, the analysis will focus on the collaboration

among the stakeholders. By means, the interaction is presented in the collaboration process which includes coordination, cooperation, networks, and partnerships (Kapucu and Garayev, 2011).

Before implementing the field research, a preliminary stakeholder analysis is constructed based on literature (theories), laws and regulations, spatial planning, and development planning documents (see: diagram 3.1.)

Diagram 3.1. Preliminary stakeholder analysis: hierarchical governance of institutions in the rehabilitation and reconstruction (RR) of post-eruption Merapi 2010



Source: Author (2014) adapted from Bappenas and BNPB (2011)

In the analysis stage, the framework is developed based on the empirical findings of the field research. Based on the disaster management of post-eruption Merapi, the stakeholders are grouped into three categories: governmental institutions, NGOs, and others e.g. communities, villagers, individual donators, media, independent professional, universities' team, and experts (for list of stakeholders, see: Appendix E). The categorization is simply being addressed based on the 'governmental' and the 'non-governmental' organizations. 'Governmental' refers to the formal government institutions, and the NGOs represent the

organizations outside the previous definition. The term 'NGOs' here refers to all the non-governmental organizations which consist of group of people (not a single/individual member). It includes all types of NGOs e.g. the independent, commercial, non-profit, and or organizations with any majors. The scale of networks could be international, national, or local.

Based on the collected data from the field research, the stakeholder analysis is being enhanced through the hierarchical and networking framework analysis. Previously, analysis of the disaster management process is applied to identify the types of the disaster management. Elaboration of the activities and processes of the disaster management aims to examine whether it is integrated with the concept of sustainable development or not. As discussed in chapter 1 and 2, the integration of disaster management and sustainable development should represent the dimensions of the sustainability and continuous phase of the disaster management phases, and the continuity of the development initiatives in the disaster management. When the disaster management phases are applied in a continuous and sustainable cycle, it represents the implementation of sustainable development concept. Through the approach of the ideal disaster management process or cycle, the phases should contain: prevention and mitigation, preparation and preparedness, and emergency response, and restoration and reconstruction (Carter, 1991; Alexander, 2000; Vale and Campanella, 2005 in Russel, 2005). Through the same approach, disaster management process should represent a continuous process without start and end for each disaster event, in which the activities during the disaster are not separable in time and location (Russell, 2005). By means, the activities of the phases are often overlapping. For instance, while doing the emergency response after disaster strikes, it is also required to begin the implementation of the recovery and development process. The recovery and development covers the empowerment programs in order to build resilience in facing the next disaster event. It represents that the disasters and the recovery processes should be ordered and knowable (Russell, 2005). In the next chapter, it will be analyzed whether the disaster management process of post-Merapi eruption 2010 is being addressed in accordance with the sustainable development concept or not. Further, the results of the analysis are applied in the SWOT (Strength, Weakness, Opportunity and Threat) analysis of the disaster management of post-eruption Merapi 2010. The SWOT analysis is expected to reveal the strengths, limitations, and drawbacks of the disaster management.

Furthermore, the hierarchical and networking framework analysis is applied to determine the organizational framework of the disaster management of post-eruption Merapi 2010. Hierarchical analysis is applied as preliminary stakeholder analysis to identify the position and tasks of the involved stakeholders in disaster management. It represents the multilevel coordination among the stakeholders (Jordan, 2008). Meanwhile, the networking analysis is intended to examine the interactions and relationships among stakeholders. It portrays the multi-scale participation of the stakeholders in broader society (Jordan, 2008). Both analysis are identified based on the type of interactions and relationships i.e. collaboration, coordination, cooperation, formal or informal relationships, direct or indirect relationships, and top-down or bottom-up interactions. This analysis is

arranged to generate the patterns and types of interactions and relationships among stakeholders, as well as to provide the information on characteristics of the involved stakeholders and their role in disaster management.

In principle, the analysis of disaster management process or cycle is addressed to identify the types of activities in the disaster management phases. Meanwhile, the analysis of the hierarchical and networking framework is applied to identify the types of the involved stakeholders, the performance of the stakeholders, and the dynamics of the interaction and relationships among stakeholders. Further, the results of both analyses are used to deliver the analysis of stakeholders' involvement in the disaster management, and the implication with the planning and decision making process. This analysis is seen as an approach that is able to accommodate both concepts of disaster management and sustainable development. It is important to be noted that the overall stakeholders analysis in this research is enhanced based on search to the role of the NGOs in the disaster management of post-eruption Merapi 2010. Eventually, the results of these analyses become the main reference in developing conclusions and recommendations on the following chapter.

In addition, it can be noted that the conclusions and recommendations of this research are expected to provide answers to the research questions (see: Chapter 1). Meanwhile, the results of the analysis and findings are expected to meet the objectives of the research (see: Chapter 1). Further, it can be determined the application of the field research in related to the research objectives in this research as follows:

Table 3.3. Methodology of field research related to the research objectives

No	Objectives	Data required	Sources of data	Method of data collection	Method of analysis	Output of analysis
1	To define the integration of disaster management and sustainable development					
	To generate the understanding of the integration through both concepts	Secondary data: scientific literatures	Literature reviews	Study literatures	Definition, explanatory, interpretative	Theoretical framework
2	to identify the disaster management cycle and the stakeholder analysis based on the case study					
	To identify the phases, types, and characteristics of disaster management and the stakeholders' involvement of post-eruption Merapi 2010.	Secondary data: scientific literatures, regulations, laws, planning and development documents, news Primary data: pictures, notes, transcript of interview/interview	Literature reviews, media (online and paper), respondents	Field research, observations, in-depth interview	Disaster management analysis, stakeholder analysis, coding of interview, descriptive, analogy, comparative	Disaster management cycle based on case study, hierarchical and networks structures of disaster governance
3	to analyze the role of NGOs in the disaster management					
	To analyze the disaster management process related to the planning and decision making process that represent the complete framework of stakeholders involvement in the disaster governance	Analysis data, literatures, , transcript of interview/interview, literatures, regulations, laws, planning and development documents, news	Literature reviews, analysis, primary data	Analysis	Disaster management analysis, stakeholder analysis, coding of interview, descriptive, analogy, comparative	Tables of identification: the role of NGOs in the disaster management

Source: Author (2014)

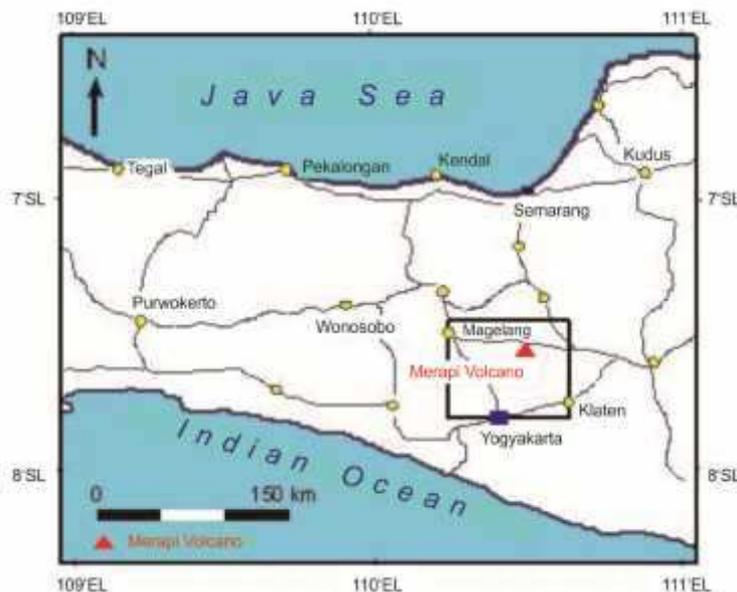
## Chapter 4

### Post-eruption Merapi

This chapter describes the existing disaster management of post-eruption Merapi 2010. Through the viewpoint of institutional context, it focuses the discussion on the policy and decision-making processes in Yogyakarta. The following will give an explanation about the preference of Merapi as case study. Followed by explaining the institutional context of the regional government of Yogyakarta. It provides framework to describe the way of the Gol (Government of Indonesia) establish the disaster boards in Indonesia. Through the time table of Merapi's activities during the eruption, it captures the reaction of the community (affected people) and the government in responding the disaster event. Mainly, this chapter discusses some major points: what situation occurred in the eruption Merapi 2010, who got involved in the disaster management and how they reacted to the disaster.

#### 4.1. Merapi and Yogyakarta

Figure 4.1. Location of Merapi in Yogyakarta



Source: PVMBG (2014)

Having more than 80 eruptions since 1672, Mount Merapi is stated as the most active volcano in Indonesia, and one of the most active volcanos in the world (Bappenas and BNPB, 2011). With a height of 2.911 m above sea level, it is located at  $7^{\circ}32'5''$  south and  $110^{\circ}26'5''$  east in the central southern part of Java Island. Merapi is bringing back the misery of disaster after the last eruption in 2010, resulting 277 people killed (Bappenas and BNPB, 2011). The eruption affected four distinct areas in two provinces: the Sleman Regency in Yogyakarta

Province and the Magelang, Boyolali, and Klaten Regencies in Central Java Province. The largest coverage area of 144 km<sup>2</sup> (of the total 314.7 km<sup>2</sup>) is located in the territory of Sleman Regency (Bappenas and BNPB, 2011). 226.618 people inhabit 57 villages, which are located in the hazard area of Merapi. The most densely populated area is the Ngemplak District in Sleman Regency with the population density of 1.529,1 per km<sup>2</sup>. Accordingly, Sleman Regency has been chosen as the case study of this research. It is supported by the assumption that the location could represent the situation of the majority population affected by the eruption.

Table 4.1. The coverage area and the total population density on the hazardous area of Merapi (radius 15 km from the crater)

Kecamatan (District)	Kabupaten (Regency)	Jumlah Desa (Total of Villages)	Population			Luas (Area)	Kepadatan (Density) (Km <sup>2</sup> )
			L (Male)	P (Female)	Total		
Sumbing	Magelang	6	6,992	7,080	14,072	23.6	596.3
Dukun	Magelang	9	10,612	11,268	21,880	26.9	813.4
Sawangan	Magelang	3	5,863	5,959	11,822	13.0	909.4
Selo	Boyolali	7	9,364	9,765	19,129	35.8	539.1
Copogo	Boyolali	4	5,065	5,026	10,091	13.4	753.1
Musuk	Boyolali	5	7,385	7,665	15,050	19.4	775.8
Kemalang	Klaten	8	10,257	10,897	21,154	38.9	543.8
Ngemplak	Sleman	3	17,682	18,251	35,933	23.5	1,529.1
Turi	Sleman	2	8,372	8,433	16,805	28.7	585.5
Pakem	Sleman	5	16,185	17,076	33,261	43.8	759.4
Cangkringan	Sleman	5	13,059	14,382	27,421	48.0	571.3
<b>TOTAL</b>		<b>57</b>	<b>110,836</b>	<b>115,782</b>	<b>226,618</b>	<b>314.7</b>	<b>720.1</b>

Source: PODES 2008, Biro Pusat Statistik in Bappenas and BNPB (2011)

Geographically, Sleman Regency has the strategic position with the shortest accessibility to the city center of Yogyakarta. It is the closest affected area to the Adisucipto International Airport of Yogyakarta and the Central Station of Tugu Yogyakarta. This ease of accessibility supports the tourism development of Yogyakarta with Merapi area as one of the top tourism destination. Sleman Regency, particularly for Merapi area, attracts visitors for its natural tourism spots: the national park of Merapi, the sport venues (tracking, hiking, golf, etc), the cultural and heritage venues (the temples, traditional houses and customs, religious tourism, etc), and the traditional culinary tourism (Dinas Budpar Sleman, 2014). By its cultural heritage and values, Yogyakarta attracts many national and international visitors to the area. Accordingly, Yogyakarta has become the second most visited tourism destination in Indonesia after Bali (Bappeda Propinsi DIY, 2011).

When the disaster strikes, the effect brings significant changes to the development of the society in Yogyakarta: the changes of the economic, social, and environmental conditions. This society includes broader groups of people such as the affected people (community) and all the involved stakeholders in the disaster management. The changes of society emerge in the efforts of responding to the disaster event. It results in the more awareness society to hazardous situations, creates more active society in responding to the disaster events, and produces more knowledgeable society about disaster management. Through the institutional context, changes appear as the efforts of the society in delivering the appropriate disaster management. Here, the disaster management of Merapi eruption in the Special Region of Yogyakarta

became a particular interest for this research: it is when the institutions are led by the *Sultan* in the planning and decision making processes. Through the lenses of institutional context, planning and decision making processes in Yogyakarta will be elaborated on more in the following paragraphs.

#### **4.2 Institutional Context of Yogyakarta**

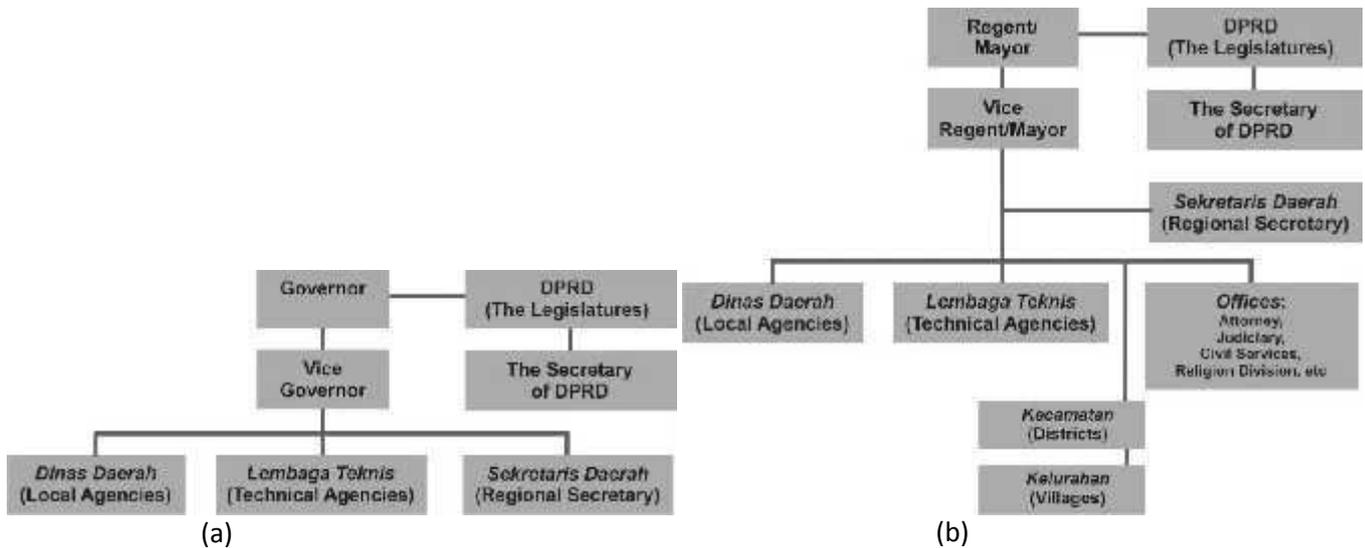
Receiving various designations such as 'Yogya', 'Jogja', or 'Jogjakarta', Yogyakarta is a province with the official name of DIY (*Daerah Istimewa Yogyakarta* or the 'Special Region of Yogyakarta'). The status as a special region of Indonesia in the provincial level of government, was set according to the Law No. 3/1950 about the Establishment of the DIY, which also set the *Sultan* (or the traditional ruler, the king) as the governor (or the head of the regional government) of the province. Inherited by the former traditional kingdom, the *Sultan* has been symbolized as the heritage of Javanese culture by the people. The *Sultan*, as the traditional leader of the society, is strongly decisive in influencing the development of the people's way of life in Yogyakarta. People obey the *Sultan* due to the Javanese's philosophical principal of life of the '*sabda pandhita ratu*' meaning: the king's word is law and is said for the good of the society (Nusantara, 1999 in Harsono, 2002).

In 2004, the institution of the Government of Yogyakarta Province is adjusted to the new form. The Law No. 32/2004 about the Decentralization stated the Yogyakarta as a provincial government amongst the 35 provincial governments in Indonesia. It generates the two sublevels of local government in Indonesia: the provincial as the middle government, and the city or region (regency) as the lowest government. The provincial government has a role as administrative of the local governments; it coordinates the lower local governments in the territory. However, the new decentralization era enables each local government to independently held election of their leaders and resources. It sets the rights, powers, and duties to manage their own regions and their own policy in accordance with the laws (Law No. 32/2004).

According to the Law No. 32/2004, the Regional Governments together with the *DPRD* (*Dewan Perwakilan Rakyat Daerah* or Legislatures) serve as the administrator of the regional governments. As the governmental administrator, the Governor and Regent are assisted by the SKPD (*Satuan Kerja Perangkat Daerah* or Regional Working Units). The Provincial SKPD consists of Regional Secretary, Legislatures' Secretary, Local Agencies, and Technical Agencies. The Regency SKPD consists of Regional Secretary, Legislatures' Secretary, Local Agencies, and Technical Agencies, Districts, and Villages. Local and Technical Agencies are responsible to the regional leaders and serve to implement the decentralization authority (Government Regulation No. 41/2007 about Regional Government Organization). The Special Region of Yogyakarta is a Province consisting of five local governments: the City (or Municipality) of Yogyakarta, Sleman Regency, Bantul Regency, Gunung Kidul Regency, and Kulon Progo Regency. The *Kabupaten* (or Regency) is an area consists of *Kecamatan* (Districts), *Kelurahan* (Villages), *Dusun* (Subvillages), *Rukun Warga* (Hamlets), and *Rukun Tetangga* (Neighborhoods).

Merapi area is located in the Sleman Regency, which consists of 17 districts, 86 villages, and 1.212 sub villages (DIY in Figures 2013).

Diagram 4.1. Provincial (a) and Regency (b) level of the Government of Indonesia



Source: Author (2014) adapted from the Government Regulation No. 41/2007

In performing the decision and policy making processes, the local governments refer to two main planning documents: the document of RP (*Rencana Pembangunan* or Development Plan) and RTRW (*Rencana Tata Ruang Wilayah* or Spatial Plan). According to Law No. 25/2004, the RP document consists of the 30 year plan of the RPJPD (*Rencana Pembangunan Daerah Jangka Panjang Daerah* or Regional Long Term Development Plan) and the 5 year plan of RPJMD (*Rencana Pembangunan Jangka Menengah Daerah* or Regional Short Term Development Plan) (Law No. 25/2004). The document represents the vision, mission, and programs of the regional heads. Prepared by the regional governments, it should refer to the document of RPJPN (*Rencana Pembangunan Jangka Panjang Nasional* or National Long Term Development Plan) and RPJMN (*Rencana Pembangunan Jangka Menengah Nasional* or National Medium Term Development Plan). The current document of RPJMD of Sleman Regency is the RPJMD 2011-2015 as the second implementation period of the document of RPJPD of Sleman Regency 2006-2025 (Local Regulation of Sleman Regency No. 9/2010).

According to the Law No. 26/2007 about Spatial Planning, it is an obligatory for the regional governments to convene the arrangement of the spatial plan. The document is being used as guidance and reference in the spatial planning process. By referring to the document of RTRWN (*Rencana Tata Ruang Wilayah Nasional* or National Spatial Plan) and the RTRW of Yogyakarta Province, the Government of Sleman Regency arranged the document of RTRW of Sleman Regency 2011-2031. The document contains the objectives, policies and

strategies, the spatial structure plan, spatial plan pattern, the delineation of strategic areas, and the guidance for the land use implementation in regions of the Sleman Regency (Local Regulation of Sleman Regency No. 12/2012).

Although the arrangement of the RP and the Spatial Plan are separated, the implementation of both is integrated. To specify the area of the development program, the arrangement of the RPJMD considers the spatial structure and pattern of the area in accordance with the RTRW of Sleman Regency. For instance, government arranges synchronization of the disaster management programs in both documents. The development of the disaster risk reduction programs in the document of RPJMD 2011-2015 is referring to the spatial structure and pattern of the KRB (*Kawasan Rawan Bencana* or Hazard Zone) of Merapi in which accordance with the document of RTRW 2011-2031. Further, disaster term becomes main consideration in arranging development plan in Yogyakarta.

Focusing the development programs and plans related to the disaster, in 2008 the Gol established the BNPB (*Badan Nasional Penanggulangan Bencana* or National Disaster Management Agency). Under the coordination of the Coordinating Ministry of the People's Welfare, this agency is directly responsible to the President. According to Presidential Decree No. 8/2008, BNPB has main tasks in preparing the disaster policy at the national scale. BNPB serves in budgeting planning i.e. using and accounting the national and international donations (aid), as well as accounting the use of APBN (*Anggaran Pendapatan dan Belanja Negara* or State Budget). Further, BNPB is responsible for preparing the guidance of the establishment of BPBD (*Badan Penanggulangan Bencana Daerah* or Regional Agency for Disaster Management). The local governments establish BPBD in order to serve the disaster management in the regions (Regulation of Head of BNPB No. 3/2008). BPBD of Yogyakarta Province was established in 2010 (Local Regulation of Yogyakarta Province No. 10/2010), and followed by the establishment of BPBD of Sleman Regency in 2011 (Local Regulation of Sleman Regency No. 12/2011). Each institution served as the coordinator of disaster management in its territory. They are the local agencies under the supervision of the Regional Secretary and it is directly be responsible to the Regional Heads.

#### **4.3. Merapi Eruption in 2010 and the Stakeholders**

When Merapi erupted in 2010, there was no specialized disaster institution in the regional level of government that is responsible to coordinate the disaster management. The current established institution related to managing disaster was only available at the national level i.e. BNPB. Without special institutions for disaster management at the local level, all the stakeholders including the governments, the affected people (community), and other actors (including NGOs) addressed efforts in to deal with the disasters. During the disaster period, they delivered responses with focus on the emergency actions as it can be seen in the table below.

Table 4.2. The activities of Merapi eruption 2010 related to stakeholders' response

Date	Activities of Merapi	Community's response	Government's response	NGOs' response
Before September 2010	Normal	Stay at the original residence, daily activities, no suspicion. News about activities of Merapi is delivered to the residents through the Merapi's Radio (managed by younger activists-local villagers).	The establishment of BNPB in 2008 by the national government. Disaster management by the Local Government of Bantul Regency for the earthquake in Yogyakarta in 2006. Planning of programs for disaster management of Merapi area (PNMP Mandiri programs).	Many NGOs for disaster are established, mostly as response for the Aceh tsunami in 2004, Bantul-Yogyakarta earthquake in 2006, and Merapi eruption in 2006 e.g. Combine Research in 2005. Last activities: they focus on the society empowerment activities in Bantul and Sleman.
20 September 2010	The status is raised from NORMAL (level 1) to ALERT (level 2)  NORMAL: visual and instrumental are asymptomatic eruption ALERT: instrumental shows symptom above normal	Stay at the original residence, daily activities. News about activities of Merapi is delivered to the residents through the Merapi's Radio (managed by younger activists-local villagers).	Statement by Balai Penyelidikan dan Pengembangan Teknologi Kebencanaan Geologi (BPPTKG) of Yogyakarta under the coordination of Ministry of Energy and Mineral Resources.	News by media
21 September 2010	The status is raised from ALERT (level 2) to STANDBY (level 3)  <i>STANDBY: increased activities are instrumentally seen, not visually</i>	Stay at the original residence, daily activities, aware of any new activities, watching the phenomena, some are refuse to be relocated, some are relocated to the village hall.	Intensive coordination and monitoring among stakeholders, lead by BPPTKG. Call for relocation to the village hall. Aids (daily needs: rice, food, toiletries) allocation for affected area, managed by village government	News by media
5 October 2010, 06:00 am	The status is raised from STANDBY (level 3) to BEWARE (level 4). The safe area is outside 10 km from the peak of the mountain.  BEWARE: instrumental and visual analysis shows the activities toward eruption	Aware of any new activities, watching the phenomena, relocate to the village hall, relocation is managed by village and district governments News about activities of Merapi is delivered to the residents through the Merapi's Radio (managed by younger activists-local villagers). The radio is down, there is technical damage as impact of the Merapi activities (something hit the transmitter). News is delivered through oral, phone, information chain communication. The youngsters are the front liner of the movement.	Asserts by Letter of Head of BPPTK Yogyakarta number 2044/45/BGL.V/2010 dated 25 October 2010 about the increased activities of Mount Merapi from STANDBY to BEWARE → technical recommendation to local governments. Aids (daily needs: rice, food, toiletries) allocation for affected area, managed by village government	News by media
26 October 2010, 5:02 pm	First eruption with distance of 'hot clouds' reach 7,5 km from the peak.	Relocate to the city (Football Stadion of Maguwoharjo-Sleman Regency).	Evacuation, response preparedness, emergency. Call for relocation to the city. Aids (daily needs: rice, food, toiletries) allocation for affected area, managed by village	News by media, NGOs deliver aids to the relocation area.

Date	Activities of Merapi	Community's response	Government's response	NGOs' response
			government	
3 November 2010	The activities is raised by the appearance of the 'hot clouds' sequently from 11:11– 15:00 am, non stop. The sliding distance reach 9 km from the peak of Merapi.			
3 November 2010, 3:05 pm	Statement: the safe area is outside the 15 km from the top of the mountain.		Call for relocation to the city (Football Stadion of Maguwoharjo-Sleman Regency). Managing daily needs in the relocation area (Local Government of Yogyakarta Province and Sleman Regency).	
4 November 2010, 00:00 am-12:00 pm	Following eruption since 3 November, with sliding distance reach 14 km distance from the peak, with spread flow to all rivers with headwaters at the mountain.			News by media, NGOs delivers aids to the relocation area, support the relocation process.
5 November 2010, 01:00 am	Safe area is outside 20 km from the peak. The hard sound is heard from radius 28 km outside the peak.	Stay at the relocation location (Football Stadion of Maguwoharjo-Sleman Regency).		
14 November 2010	The delineation of safe area is sregionally reduced in sequence. It is stated based on the reduction of the activities and the reach distance of the 'hot clouds'.		End of 2010: The establishment of BPBD Yogyakarta Province. It is responsible to handle all disaster management in the region.	
19 November 2010	Reduce the dangerous area of Merapi, the safe area is outside 10 km from the peak.			
3 Desember 2010	The status is reduced, from BEWARE to STANDBY. By provision that there is no allowed activities inside radius of 2,5 km from the peak, and the dangerousprone area is located in 300 m from the riverside that has waterheads in mountain.		BPBD of Yogyakarta Province leads the disaster management.	News by media, NGOs deliver aids to the relocation area, some NGOs build settlement in the hazard zone (the location is randomly selected, without coordination with the governments).
February-April 2011	Normal Status	Most of residents back to the original residentials (if the location is safe), move to their relatives, or build temporary houses on their original lands (self-initiative)	Early 2011: The establishment of BPBD Sleman Regency. It is responsible to handle all disaster management in the region, especially for Merapi area. National program is being delivered: Rekompak program. It focuses on the rehabilitation and reconstruction, delivered in	

Date	Activities of Merapi	Community's response	Government's response	NGOs' response
			phase: relocation, build temporary house, build permanent house.	

Source: Bappenas and BNPB (2011), Author (2014), Muji and Zalik (2014), Supriyadi (2014), Laksito (2014)

From the table above, it can be seen that the broad involvement of the stakeholders in the post-eruption Merapi 2010 creates challenges in the disaster management. On one side, it brings plenty of resources for the development of the programs, but also creates dynamic situation in the interactions and relationships among stakeholders. As the representative of the Gol, the Coordination Team of the Rehabilitation and Reconstruction of Post-eruption Merapi 2010 becomes the key actor in the governance arrangement. Meanwhile, the support of the NGOs in the disaster management is also significant. Hence, determining the role of the NGOs in the disaster management is substantial. Through this approach, the resources can be optimally managed to support the strenghts of the disaster management, rather than produces drawbacks that can hamper the process. With focus on the involvement of the NGOs in the post-eruption Merapi 2010, the dynamism of interactions and relationships among stakeholders will be analyzed deeper in the following chapter.

## Chapter 5

### Analysis and Findings

This chapter provides an analysis based on data resulted from the field research. Firstly, it defines the main drawbacks and limitations of the disaster management including the gaps of relationship between the governments and the affected people, and the involvement of the NGOs in the post-eruption Merapi 2010. Related to the sustainable development context, this section enhances the analysis of disaster management and the implication with spatial and development planning in Indonesia. Secondly, it analyzes the interactions among stakeholders with focus on the role of NGOs. Through the indicators of interaction approach, this section reveals whether the NGOs play a role in overcoming the limitations of the disaster management. Both sections are completed with a SWOT analysis to enrich the findings that are put randomly among the paragraphs. The results of this analysis are being used to build recommendation in the last chapter of conclusion and recommendation.

#### ***5.1. The Disaster Management of Post-eruption Merapi 2010: Strength and Limitation***

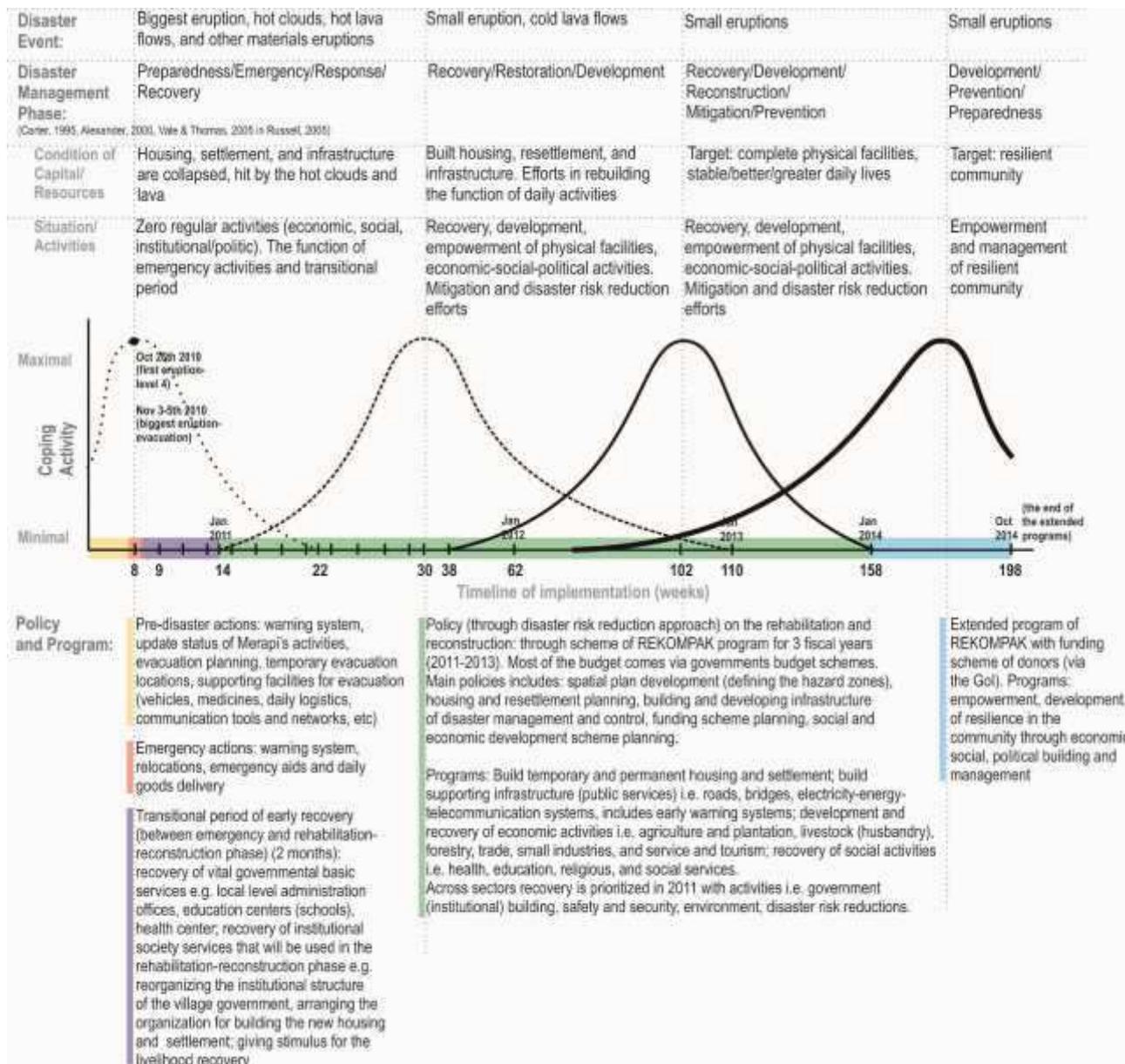
Analysis upon disaster management of post-eruption Merapi 2010 covers identification of activities that involves broader stakeholders as well as wider society. Involved stakeholders are actors who take role in the disaster management actions and programs, whether direct or indirect, by formal or informal relationships. Meanwhile, wider society refers to all involved stakeholders, affected people by disasters, and other communities outside the disaster area. Related to the case study, the society refers to all level of government institutions, NGOs, business corporations, individual participants/volunteer, affected communities, and broader communities live in the regional locations.

The analysis of this section applies the urban recovery approach (Vale and Thomas in Russel, 2005) by examining the aspects of disaster management phase, activities, and disaster timeline. It is purposed to identify the types of activities in each disaster phase. Then, the implication of the disaster management with the spatial and development planning is provided to analyze whether the disaster management runs in continuous and sustainable phases, and to ensure the continuity of the development initiatives in the disaster management. Overall, the discussion in this section is addressed to portray the formulation of the disaster management of post-eruption Merapi 2010 in which the aspects of mitigation, preparedness, response, recovery, and development has been delivered.

Following the description of activities by eruption Merapi 2010 in chapter 2, the analysis of disaster management activities of post-eruption Merapi 2010 can be illustrated in the diagram x. Ideally, there is overlap

activities in each disaster phase (Russell, 2005). It portrays the substantial continuous process without start and end for each disaster event, and to ensure the success transition from one phase to the next phase.

Diagram 5.1. Analysis of disaster management phase of post-eruption Merapi 2010



Source: Carter, 1995; Alexander, 2000; Vale & Thomas (2005) in Russell (2005); Bappenas and BNPB (2011); Author (2014); Kuswiyanto (2014); Muji (2014); Saptadi (2014); Zalik (2014).

The diagram above shows that disaster management of post-eruption Merapi 2010 provides overlap of activities between phases. It portrays that the decision and policy is delivered with a sustainable approach, and the transitional phase is being applied as base for the next phase. According to respondents, the purpose in having the overlap or transitional period is to build sufficient base in all aspects of activities in the next phase, in which also stated in the referring document of Action Plan of Rehabilitation and Reconstruction of Post-eruption

Merapi 2010 (Bappenas and BNPB, 2010; Saptadi, 2014; Saptono, 2014). Moreover, the overlap time occurs naturally, it becomes the needs of the involved stakeholders in the planning process in which it mostly by personal awareness (Saptadi, 2014; Sugiarto and Rusmana, 2014; Putra, 2014). This notion occurs implicitly in the interview session with Ika Putra, a representative expert of the Gadjah Mada University Team, as follows:

“.. After the eruption, they (local governments with broader stakeholders) continuously held meetings to prepare the early recovery, our contribution was for the housing and settlement programs...” (Putra, 2014)

Based on the identification of policy and program in the diagram x, this research categorizes the disaster management of post-eruption Merapi 2010 into three phases: emergency phase (including the pre-disaster and transitional phases), rehabilitation and reconstruction (recovery) phase, and the development (empowerment and maintenance of resilience) phase. Related to the theory, emergency and recovery phase refers to the post disaster phase, while the empowerment and maintenance of resilience phase refers to the pre-disaster phase (Freeman et al., 2003). Based on the observation, each phase of post-eruption Merapi is delivered with focus on social, economic, and environmental recovery programs. Refers to the argument by Ostrom and Cox (2011) problems related to the environmental concerns are context dependent, and needs solution with context specificity. By means, complexity follows the specific problem in which response on one issue could trigger other problems. This notion is related to the environmental problems in the post-eruption Merapi with the specific character of geographic location, social norms and values, and political situations. To deal with the problems, the government establishes community-based empowerment solution with approach to the local norms, culture and values. By means, communities or affected people are the active actors in each disaster management phase to efforts their own recovery and resilience. This situation portrays the context dependent dan specificity of disaster management post-eruption Merapi. Hence, this approach brings prominent characteristics to each disaster management phase that results strengths or limitations to the program implementation. Through the perspective of specificity characters, each disaster management phase is examined through this following sub sections:

#### ***5.1.1. Emergency Response Phase: the influential Communication and Coordination***

According to diagram x, disaster management of post-eruption Merapi 2010 started with the pre-disaster actions then followed by the emergency response and early recovery. According to the observation, in the pre-disaster and emergency response, the main prominent activity was the socialization of update of the mountain's activities, led by the PVMBG (*Pusat Vulkanologi dan Mitigasi Bencana Geologi* or Centre of Volcanology and Geological Hazard Mitigation). PVMBG is an agency serves under the coordination of the Ministry of ESDM (*Energi dan Sumber Daya Mineral* or Energy and Mineral Resources). The increased activities of the mountain

since September 2010 was communicated to the public through many media e.g. press networks, internal governments' networks, communities' networks, and individual networks. Not only delivering the status of the mountain activities, but the flow of information is also useful in delivering the information about the aids and logistics, damage and losses and the disaster management program implementation. The active participant of all stakeholders in the communication networks brings continued information networks since the early response phase to latest phase. Examples of the information broadcasted through media can be examined as follows:

Table 5.1. Flow of information: news about eruption Merapi

Date of issue	Media	Source of news	Title/content/implication
October 29, 2010	Kompas Regional Jateng-DIY (national-regional press)	<a href="http://regional.kompas.com/read/2010/10/29/09084687/BERITA.FOTO..Merapi.Meletus.Jumat.Pagi">http://regional.kompas.com/read/2010/10/29/09084687/BERITA.FOTO..Merapi.Meletus.Jumat.Pagi</a>	<p>"... Gunung Merapi kembali mengeluarkan awan panas atau wedhus gembel, Jumat (29/10/2010) pagi sekitar pukul 06.14 WIB.."</p> <p>Reporting the status update of Mountain Merapi after the first eruption on October 26, 2010.</p>
November 6, 2010	Sulastama Raharja (individu, an Indonesian Geoscientist)	<a href="http://mountmerapi.net/2010/11/06/erupsi-merapi-dan-rekomendasi-pvmbg-5-november-2010/">http://mountmerapi.net/2010/11/06/erupsi-merapi-dan-rekomendasi-pvmbg-5-november-2010/</a>	<p>"Erupsi Merapi dan Rekomendasi PVMBG".</p> <p>Delivering complete information about the recommendation of disaster response and actions by PVMBG on November 5, 2010, completed by the hazard area maps established by BNPB on November 4, 2010.</p>
November 9, 2010	IOM (International Organization for Migration) (international NGOs) for Reliefweb	<a href="http://reliefweb.int/report/indonesia/indonesia-iom-supports-government-response-merapi-eruption">http://reliefweb.int/report/indonesia/indonesia-iom-supports-government-response-merapi-eruption</a>	<p>"INDONESIA: IOM Supports Government Response to Merapi Eruption".</p> <p>Reporting that IOM is providing transport for the government, international and local NGOs to distribute non-food relief items for some 290,000 people displaced by the eruption of Mount Merapi in Central Java.</p>
November 24, 2010	The World Bank Indonesia (international NGOs)	<a href="http://www.worldbank.org/in/news/feature/2010/11/24/mengukur-merapis-losses">http://www.worldbank.org/in/news/feature/2010/11/24/mengukur-merapis-losses</a>	<p>"Mengukur Kerugian yang diakibatkan oleh Merapi".</p> <p>Reporting the contribution of the WB in the post-disaster eruption Merapi 2010. The WB assisted the GoI (represented by BNPB) in making the damage and loss assessment (DALA). Moreover, it is reported the WB's support in the PNPM Mandiri program for Merapi through the program of REKOMPAK.</p>
December 3, 2010	The Government of Sleman Regency	<a href="http://www.slemankab.go.id/category/update-data-korban-bencana-erupsi-gunung-merapi-2010">http://www.slemankab.go.id/category/update-data-korban-bencana-erupsi-gunung-merapi-2010</a>	<p>"Jumlah Korban Meninggal Bencana Erupsi Merapi per Tanggal 2 Desember 2010 mencapai 277 orang".</p> <p>Reporting latest data of people died established by the Government of Sleman Regency. Started from October 27, 2010, the data was updated every 1 or 2 days with details of name and address, can be accessed freely through the official website of the Government of Sleman Regency.</p>
January 27, 2011	The Ministry of Education and Culture with the Indonesian Teacher Union of Sleman Regency	<a href="http://p4tkmatematika.org/2011/01/penyaluran-bantuan-dari-posko-pendidikan-kemendiknas-untuk-guru-korban-erupsi-merapi/">http://p4tkmatematika.org/2011/01/penyaluran-bantuan-dari-posko-pendidikan-kemendiknas-untuk-guru-korban-erupsi-merapi/</a>	<p>"Penyaluran Bantuan Dari Posko Pendidikan Kemdiknas Untuk Guru Korban Erupsi Merapi".</p> <p>Reporting the humanitarian aids from related ministry and PGRI as local community</p>
September 19, 2011	Sentot Sederajat, Adam Agus, Yuniarta for REKOMPAK (National Project Management Unit for Eruption Merapi 2010)	<a href="http://rekompakciptakarya.org/news/2011/09/pelatihan-dasar-rekompak-10-%E2%80%93-14-september-2011/">http://rekompakciptakarya.org/news/2011/09/pelatihan-dasar-rekompak-10-%E2%80%93-14-september-2011/</a>	<p>"Pelatihan Dasar Rekompak 10 – 14 September 2011".</p> <p>Reporting the workshop of REKOMPAK by the government for the community.</p>

Date of issue	Media	Source of news	Title/content/implication
July 17, 2012	Bambang Muryanto and Arya Dipa for The Jakarta Post (national press)	<a href="http://www.thejakartapost.com/news/2012/07/17/mount-merapi-spouts-ash.html">http://www.thejakartapost.com/news/2012/07/17/mount-merapi-spouts-ash.html</a>	"Mount Merapi spouts ash".  Reporting latest status of Merapi's activities, forwarding information from the Volcanic Technology Development and Research Center (BPPTKG) that the Merapi remains normal because there was no dangerous volcanic activity, and further information on volcanic activity can be obtained from the Yogyakarta BPPTKG.
January 2, 2013	Muh Syaifullah for Tempo (national press)	<a href="http://www.tempo.co/read/news/2013/01/02/058451630/Akvitas-Gunung-Merapi-Meningkat">www.tempo.co/read/news/2013/01/02/058451630/Akvitas-Gunung-Merapi-Meningkat</a>	"Akvtas Gunung Merapi Meningkat".  Reporting latest status of Merapi's activities from the BPPTKG: there was activities without eruption symptoms, there was avalanches of lava came from outside the crater (not from inside the crater).
July 17, 2014	Sentot Sederajat- and Sugiarto for REKOMPAK (National Project Management Unit for Eruption Merapi 2010)	<a href="http://merapi.rekompakcipta.arya.org/">http://merapi.rekompakcipta.arya.org/</a>	"Penerapan Good Governance untuk Perkuat Livelihood".  Reporting the Focus Group Discussion meeting on the good governance framework which will be implemented for each village affected by Merapi eruption.

Source: Author (2014)

Besides through the online news, the information about the Merapi's activities is also delivered by another method e.g. village government networks, radio networks, and local community forum networks. In the field, most of communication is delivered by spontaneous actions e.g. communication by mobile phone and face to face (door to door), as it has been done by one of the villagers in Wukirsari village, Cangkringan (Zalik, 2014). By the movement of youth community in the village, any ways are addressed to keep the communication networks continued, as it has been mentioned by one of the villagers:

"...Yes, there is community radio in Merapi, the 907 and SKB (*Saluran Komunikasi Bersama* or Communal Communication Channel). But at that time, 'the repeater' (re-transmitter radio) in the Bale Rante was down. However, the information about Merapi's status was always updated, via the village government. They delivered the information to us, by direct communication, phone, sms, etc. Further, we moved to the location (for delivering the information, logistics) by coordination of the village governments..." (Zalik, 2014)

Organization outside the village community that was actively assisted the communication networks in the location is SAR (Search and Rescue) that serves under the coordination of the Ministry of Transportation. Here, SAR delivered information using the speaker in some strategic locations in the village (Zalik, 2014). In an interview session with NGO's representative, Combine Research Institute, has been known that BPPTKG (*Balai Penyelidikan dan Pengembangan Teknologi Kegunungapian* or Volcanic Technology Development and Research Center), as the representative's agency of PVMBG, holds substantial role as the source of information related to the status update of the mountain. Continuously working with BPPTKG Yogyakarta, Combine Research Institute is one of the NGOs with the focus activities on the information and knowledge management. Based on resource of BPPTKG, major information was managed by bigger stakeholders

networks e.g. FPRB (Disaster Management Forum) of Yogyakarta. Hence, information was broadcasted by many media to the public (Wijoyono, 2014). As it is explained by the Program Coordinator of Combine Research Institution as follows:

“..and we do not work alone, we have networking partners. In Merapi, we join Jalin Merapi, work together with partners in the Radio Merapi. So many NGOs join the Jalin Merapi, and many join the PRB Forum (*Forum Pengurangan Resiko Bencana* or Disaster Mitigation Forum) of Yogyakarta, it is the place for the information traffic of Merapi disaster, it becomes the embryo of the communication system among many institutions (related with Merapi disaster), including governmental institutions, NGOs, community organizations. It was established to facilitate communication and coordination, so we know what we are doing each other, to avoid the overlapping activities. In the forum, we can find participants (stakeholders) based on clusters..” (Wijoyono, 2014)

Accordingly, it can be seen that the table and discussion above draws the pattern of information networks in a sporadic and spontaneous way, supported by actions from stakeholders with differ backgrounds and organizational levels. It represents the involvement of broader actors from the media to the communities. Hence, it reveals the sustainable and wider communication pattern of the information spread for Merapi status update. Moreover, the validity of information is also substantial in the process, and the observation shows that the disaster management involved broader stakeholders to play role in maintaining the validity. Further, it can be seen that any actions and information development was referred to the BPPTKG or PVMBG or local governments as the main source of information. Here, the identification of information networks is necessary to be addressed as one of the important aspect in determining the interactions and relationships among stakeholders i.e. communication, collaboration, cooperation, and coordination (Kapucu et al., 2011).

#### Findings:

The interactions among stakeholders of disaster management post Merapi eruption 2010 are greatly influenced by the initial communication and coordinations among involved stakeholders. This situation shows the development of interactions i.e. from communication to coordination, in which also involved cooperation in providing valid information. The cooperation among stakeholders is more informal and often done spontaneously. Interaction that begins with spontaneity and sporadic action becomes its own character of disaster management of post-eruption Merapi 2010. Further, this communication network influences the coordination, cooperation, and collaboration among stakeholders. This findings supports previous impression that communication results notion of the interaction among actors in the disaster responses (Saab et al., 2008).

The observation shows that communication in the disaster emergency response of post-eruption Merapi 2010 is substantial and can be well managed by all involved stakeholders. As it is mentioned by a respondent, this situation represents awareness of the stakeholders that validity information should be maintained as the

main base for further policy development and decision making process (Putra, 2014). Further, observations also show that information exchange in the communication process represents dependencies among stakeholders. Hence, it becomes the basic source in developing coordination in the disaster management. As it is mentioned before, there is a formal communication network of FPRB Yogyakarta that serves as the biggest forum of coordination among involved stakeholders in the disaster management of post-eruption Merapi 2010. By accommodating members of governmental and non-governmental entities, this forum represents nonprofit partnerships in the disaster actions of Merapi eruption (Saptadi, 2014; Wijoyono, 2014). Meanwhile, there is a limitation in making the coordination among members in the FPRB, due to the different motifs of stakeholders in contributing in the disaster management actions. A respondent mentioned that some of NGOs serve by the motivation of getting benefit from the programs (Rianto, 2014). Further, Rianto (2014) adds that:

“..this is the bias in the interaction among stakeholders, even left new problems for the local government and communities. Often the results of the communication (the information that they brought) becomes obstacle because the invalidity of the information”. (Rianto, 2014)

Furthermore, the information network among stakeholders was used by regional governments, as basic source, in doing the coordination including aids and logistics delivery. According to affected respondent by disaster, before the October 26, the village government established actions for preparing the evacuation (Zalik, 2014). Humanitarian assistance e.g. aids and logistics that is delivered directly to the village government or community came from the personal donators and the Government of Sleman Regency (distributed through the Social Service Agency) (Zalik, 2014). Then, Zalik added that “... the help in the evacuation time was come from the Tagana (*Taruna Siaga Bencana* or Youth Disaster Preparedness Club) of East Java” (Zalik, 2014). Tagana is a youth clubs for the disaster preparedness, the youth clubs of search and rescue, established by the Ministry of Social Service.

On the first eruption on October 26, there was no specialized institution for the disaster management in the regional level. The disaster management was managed by the regional government of Yogyakarta which is seen able and succeeded in delivering appropriate disaster management to the community. This situation is identified from the interview session with some villagers that feel satisfied with the provincial and regency governments' actions in managing the disaster assistance of post-eruption Merapi 2010 (Zalik, 2014; Ngatinah, 2014; Rosita, 2014). Villagers mentioned that the logistics and aids were more than sufficient; even they still have it more than a year after the eruption occurred (Rosita, 2014). The distribution mechanism was also affordable and easy through the coordination of the Social Service Agency. On the other hand, there was a phenomenon related to the distribution problems i.e. some aids and logistics through the head of the village were never reached the community, as it is mentioned by Rosita (2014):

“..... we (villagers) do not trust our head of village, related to the aids distribution. Many aids and donation is not well-distributed. Problems and issues in the fields mostly solved by ourselves, led by the head of the sub-village ...”  
(Rosita, 2014)

The situation above gives the assumption of low trust levels from the community to a certain characteristics of their leader. On the other hand, that experience did not eliminate the whole trust to other governments. By means, the community still puts trust to other governments; they do not treat other levels and types government officer in the same way. After the old head of the village was changed, community was able to put their trust back to the new elected head of the village. It represents specific characteristics of local people Javanese people in surrounding area of Merapi. Thus, it influences the development of social capital as a mature and wise community in responding to the disaster event. Further, this aspect is being grabbed by the governments to deliver and develop community-based empowerment in the recovery and development phase of disaster management.

Government's response in immediate change the suspected previous head of the village represents the good intense of the government in respecting the commitment and maintaining the trust from the community. It represents the awareness that norms and values as the social capital is considered significant in influencing the development of disaster management. As the argument said, social capital is the basic of social innovation that influences the proactive movement in pursuing sustainable development (Moe and Pathranarakul, 2006; Parra et al., 2013). Further, social innovation of the community is seen from community's participation in the recovery phase that implements the community-based approach in building their own permanent housing. For instance, they play role in reaching solution to any emerging issue in the construction process e.g. designing the house, affording the materials, and the budget management. Meanwhile, from the stuck aids and logistics that were not reached the target of the community can be identified as the lack of leadership and low governmental capacity in managing the disaster.

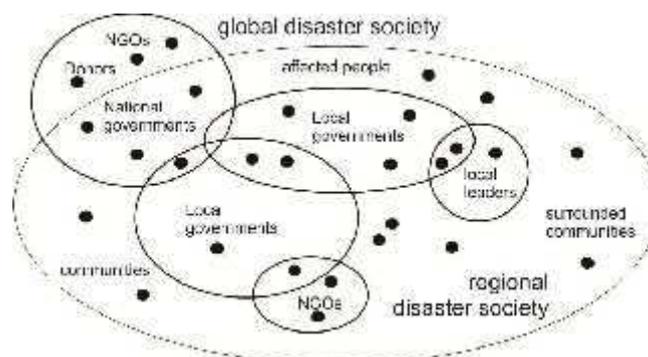
The situation above represents the gap of perceptions between the personal interest from an officer and the community. On one hand, the community assumes that trust is important and assistance is very expected to reach them properly. On the other hand, certain person with individual interest used the situation to misused the trust by the perception that the aids and logistics can be used as beneficiaries for him.

**Findings:**

The interaction of stakeholders in the disaster management of post-eruption Merapi 2010 is strongly influenced by the norms and values of trusts that are part of the social capital. Here, this research supports the definition of social capital as "networks together with shared norms, values and understandings that facilitate co-operation within or among groups" (Brian, 2007). Awareness in maintaining trust among stakeholders and the community shows appreciation for the trust as an important element in building the social capital in the community. By means, social capital is the link that builds the

interaction between individuals and groups based on trust among each other (Fukuyama, 2001; Brian, 2007; Bridger and Luloff, 2001; Newton, 2001; Eitorre, 2012). Although there is no explicit unspoken, but it can be seen in the observation that all the actors keep the trust as important value in the society. As it is argued, here is when the trust is transferring the substantial innovation, information, and human resources (Fukuyama, 2001). Further, this findings support the previous argument that the trust as "encapsulate interest" plays the central role as the main component of social interactions (Newton, 2001).

Figure 5.1. Networks of trust among society of eruption Merapi



Source: Author (2014) adapted from (Fukuyama, 2001)

Above the limitation above, it is undeniable that there are other phenomena such as damage and loss as the effect of the eruption. The theory says that the damage and loss is a representation of the condition or capacity of the society to deal with the harm (de Guzman and Units, 2003; The World Bank, 2013). By means, the loss and damage of the disaster was the result of exposure which also represent vulnerability in the face of natural hazards. In other words, vulnerability is inherent in the loss and damage as the effect of disaster. Hence, with total loss of IDR 2.141 trillion and 277 people killed, the previous disaster management of Merapi eruption in Yogyakarta cannot be simply said to bring success. There are many factors that affect the implementation of disaster management, and success is also highly dependent on the perpetrator perspective. Further, the description of the strengths and limitations of the disaster management Merapi eruption is being elaborated through the SWOT analysis in the following sub-section.

After the biggest eruption on November 5th, the Gol established recovery programs of rehabilitation and reconstruction for the fiscal year of 2011-2013. In the meantime, to fill the gap between the time of evacuation and recovery period, the government conducts early recovery phase. Based on the observation, this early recovery is a transition that is prepared to initiate recovery activities e.g. the improvement of public facilities and infrastructure, vital basic services of the government facilities, and the stimulus economic recovery and social activities. Many stakeholders participated in the program that was addressed for the affected community while they live in the evacuation location for 4-6 months. The existence of this transitional period represents the sensitivity and awareness of all involved stakeholders led by the government in conducting the disaster management. The participation of the NGOs in the programs shows supports and commitment for all

stakeholders to the government's programs. Moreover, it also represents government's awareness that assistance from many entities is substantial, and governments hold the commitment to provide open scheme for broader participation to invite many types and sizes of NGOs to be involved in the programs. As it is argued, the government's openness becomes the key to promoting the success of collecting aids in the disaster management, and allowing entry of outside assistance such as humanitarian assistance from the NGOs (Brown, 1991; Affolderbach et al., 2012; Tierney, 2012).

As many disaster issues worldwide, the disaster management of post-eruption Merapi requires rapid response and no small cost. In a point of fact, the Gol has limited fund sources that can be able to be delivered immediately as a ready budget to the affected people, related to the complex state budgeting scheme and system. According to one respondent, the bureaucracy system in Indonesia is unique, not flexible for the disbursement of the immediate central and regional budgets, which is urgent in the disaster situation (Kuswiyanto, 2014). Therefore, the government proposed a scheme IMDFF-DR (The Indonesian Multi Donor Fund Facility For Disaster Recovery) that has been initiated since 2009, as a disaster response platform that can quickly distribute the state budget (Kuswiyanto, 2014).

Based on the observations, with the help from NGOs, gaps of problem above can be solved, especially in addressing the issue of funding. In the disaster management of post-eruption Merapi 2010, one role of the NGOs is distributing and managing the funding from donators. Here, bigger (international scale) NGOs support not only distributing the donations but also assisting the funding management. As stated by the respondent, for instance, the WB provides financial assistance and management of funding from the international donors (Bappenas and BNPB, 2011; Kuswiyanto, 2014). In addition, the UN Agencies such as the IOM and FAO are also providing supports in the disaster loss assessment process (Saptadi, 2014). Based on the observation, medium and small scale of NGOs is also competing in providing the contribution e.g. PMI (Indonesian Red Cross), Handicap International, Combine Research Institute, and MDMC (Muhammadiyah Disaster Management Center) that provides humanitarian assistance in the form of mentoring economic and social activities. Related to the governance principle of disaster management, it demonstrates the implementation of polycentric and multilevel arrangement of governance that led to the creation of large multi-organizational emergent networks (Tierney, 2012). Further, it is noteworthy to see how the emergence of this large multi-organizational network can be well coordinated in which the central coordination plays an important role.

Overall, the emergency response phase of disaster management post-eruption Merapi 2010 results good response from the affected people as the main subject of the program. This is drawn by the opinions of people who are satisfied with government's services during the evacuation process and while the living in the evacuation locations. The active participation of broader stakeholder also promotes wider and faster communication networks as the basic source of the coordination process. This situation represents the significant role of the government as the coordinator in disaster management. Meanwhile, the role of NGOs as

supporting actor and the community's cooperation in running the program is also important. Related to the role of NGOs in the interactions among stakeholders, the complete analysis will be further elaborated in further section.

### *5.1.2 Rehabilitation and Reconstruction Phase: through the Perspective of Spatial and Development Planning*

Rehabilitation and reconstruction (recovery) of post-eruption of Merapi 2010 is series of programs established by the government. It was implemented within the framework of the REKOMPAK program consisting of three main activities: the construction of housing and settlements, the recovery of economic activities, and the spatial arrangement of Mount Merapi area. The standout point of the strategy implementation is based on the philosophical concept of 'build back safer'. According to respondents, moreover this concept becomes major cornerstone in delivering any actions (Kuswiyanto, 2014; Putra, 2014). In principle, the concept 'build back safer' refers to the efforts in bringing back better and safer situation than before (Bappenas and BNPB, 2011). Meanwhile, according to literature, the concept of 'build back safer' including 'build back better' can cause bias, because the different interpretation of the word 'better' or 'safer' according to certain point of view (Kennedy et al., 2008). This situation also occurs in the implementation of disaster management of post-eruption Merapi 2010. According to some respondents which also villagers, 'better' refers to a better home and income (Rosita, 2014; Ngatinah, 2014). Here, the observation portrays some limitations in implementing the concept: when there is inequality condition of the built settlement and housing, or difference amount of aids received by the community. Dealing with this complexity, the governments address two approaches: reorganizing humanitarian assistance through one door, and delivering personal and social approach to foster tolerance and equality in the society. For instance, the cancellation of assistance that will be directly delivered to a group of people, it was then reorganized by the head of the village to be distributed evenly (Ngatinah, 2014). This situation depicts the ability of the government to address solution to the potential conflict issue, and the adaptation ability of the community to dampen the potentially conflicted-issue.

Different with the villagers, the technical agency of the rehabilitation and reconstruction programs i.e. PMU REKOMPAK interprets the concept of 'build back safer' in another perspective. Here, 'build back safer' means the achievement of the disaster risk reduction awareness with community planning and capacity building processes (Bappenas and BNPB, 2011). According to respondents, the main approach was to make people independently relocate and rebuilding their own houses, as well as empowers their economic and social life (Sugiarto and Rusmana, 2014). Here, the government is supported by the participation of NGOs in facilitating the activities i.e. knowledge transferring, guiding the programs, assisting communities and the governments during the construction of housing and settlements, and mentoring and facilitating the social and economic recovery programs (Sugiarto and Rusmana, 2014; Muji, 2014; Rosita, 2014). This situation portrays the role of

NGOs in bridging the gap of perception between government and communities by delivering the policy with the local language in order to be understood and accepted by the local communities. It can be seen that the ability and resources of NGOs in carrying the objective of the programs to be accorded with the character of local communities becomes the major influence in supporting the whole programs.

Based on the observation, the main challenge in delivering the program is getting people's trust that the governments as the leader of the program are capable in guiding them towards better conditions. Based on interview results, limitation of the implementation occurs when there is government's representative (as facilitator) who used the opportunity of the project implementation to make corruption (Rosita, 2014; Muji, 2014). Fortunately, the governments hold the commitment to maintain the trust; they are responsible and swiftly deal with the complexity: fired the personal and imposed fine (Rosita, 2014). This situation shows the government's commitment to the sustainability of the program, and the awareness of the importance to build trust among actors in the programs.

The implementation of 'build back safer' of post-eruption Merapi 2010 was conducted with approaches of community-based development, mitigation (disaster risk reduction), and management of transparency (Bappenas and BNPB, 2011). The concept of 'build back safer' was carried out within the framework of achieving the medium-term and long-term development planning goals, especially refers to the development planning of Sleman Regency. This situation shows the implementation of the sustainable development concept in the disaster management planning. The long-term and medium-term development goals were stated in the law of RPJP (Long Term Development Plan) 2006-2025 and RPJM (Medium Term Development Plan) 2015-2015 of Sleman Regency. In philosophical meaning, the objective need to be achieved is the condition of a society with prosperity, well-being with a sense of peace, security, and order (Local Regulation of Sleman Regency No. 9/2010 and No. 7/2005). In this case, the planning of recovery programs based on the development planning goals depicts the integration of the disaster management and sustainable development concepts in the planning process. Here, the disaster management approach is seen as a direct representation of the principles and values of the development plans. For instance, the principle of decentralization of the local/regional authorities is reflected by the establishment of BPBDs that serve as program coordinators of the disaster management. Then, the community-based approach is the implementation of the democracy and participation approaches where people have rights to be actively involved in the decision making process. Moreover, management transparency is an implementation of transparency and accountability approach which guaranteed the transparent flow of information that can be understood and monitored by all actors, and accountable to all involved stakeholders. Eventually, it can be seen that all these approaches reflects the efforts in addressing certain values: independence, integrity, responsibility, discipline, professionalism, unity in diversity, justice, equality, and cooperation.

In addition, through the concept of 'build back safer', the rehabilitation and reconstruction was also conducted with the approach of the concept 'living with disaster in harmony'. This is reflected in the approach of rearranging the spatial plan of Mount Merapi area. Here, the objective is to deliver the understanding that people live in the Merapi area means that they need to live in harmony with Mount Merapi, or 'living in harmony with Merapi' (Setiawan, 2013). Hence, it emphasizes that the awareness and responsibility to manage the area is not solely belong to the governments but also to the local communities. Accordingly, one of the government's policies is making the delineation of hazard zones into three areas: KRB (Hazard area) 1, 2, and 3 (see: Appendix F). Further, the result is then officially arranged in the spatial planning (Spatial Plan of Sleman Regency 2011-2031) and development planning documents (RPJMD of Sleman Regency 2011-2015).

Interestingly, the approach in addressing the spatial plan rearrangement of Mount Merapi area is the process of synchronizing the development and spatial planning documents. As noted in the chapter 4, the first document is the main reference in the implementation of development planning in Indonesia, including the disaster management of Merapi. Based on the observation, the establishment of the Action Plan document is followed by the adjustment of the disaster programs in the planning documents in all institutional levels. For instance, the adjustment of the delineation of KRB has been accommodated by the RPJMD. The RPJMD states that the hazard area of Merapi consists of Pakem District, Turi District, Cangkringan District, and Paste District with the total number of 22.452 inhabitants (RPJMD Sleman Regency 2011-2015). The Spatial Plan of Sleman Regency document then described it in details (maps) refers to the Action Plan document and RTRWN (National Spatial Plan). Here, the policy arrangement is proposed to create spatial area in Merapi that brings comfort, safety, and hazard-free area. Hence, the elaboration of the National Spatial Plan with the Regional Spatial Plan describes the synchronization of programs in many governmental levels. It also shows efforts of the government in realizing an integrated disaster management with the development plans. Accordingly, the major elaboration of disaster management concept in the spatial plan documents can be summarized as follows:

Table 5.2. Elaboration of Spatial Plan policy in the national and regional level related to Merapi area

<b>National Spatial Plan</b>	
Spatial Structure	The establishment of some area in the regency as the PKW ( <i>Pusat Kegiatan Wilayah</i> or Center Activities Area) in the Mt. Merapi Area (Sleman, Magelang, Salatiga, Boyolali, Klaten); Mt. Merapi area surrounded by the primary artery roads and toll roads
Spatial Pattern	The top area of Mt. Merapi is defined as protected area; Mt. Merapi area is defined as KSN ( <i>Kawasan Strategis Nasional</i> or National Strategic Area) of Mt. Merapi
<b>Regional Spatial Plan</b>	
Spatial Structure	The delineation of in the surrounding area of Mt. Merapi (Sleman Regency); The delineation of PKL ( <i>Pusat Kegiatan Lingkungan</i> or Environment Activities Area) along the primary local roads; Planning for the primary artery and the toll roads plan in surrounding Mt. Merapi
Spatial Pattern	The top and surrounded area is established as the National Park of Mt. Merapi; The area between the Mt. Merapi and the Mt. Merbabu is established as Protected Area

Source: Author (2014) adapted from Bappenas and BNPB (2011)

Following the table above, the detail of policy elaboration is translated into the maps of RTRW e.g. Disaster Risk Area Map of Merapi, and Spatial Structure and Pattern Plan of Mt. Merapi Area (Bappenas and BNPB, 2011). Based on observation, these maps are being used as basic reference in arranging the disaster management plan by related SKPD (Working Units) e.g. in arranging the evacuation route plan by the BPBDs, delineating the *Huntara* (*Hunian sementara* or temporary housing) and *Huntap* (*Hunian Tetap* or permanent housing) by the working units of Sleman Regency.

As both documents of spatial and development plans are set by the Laws, it is substantial to have deeper understanding on the integration of both documents. On one hand, the implementation of disaster management should be able to carry out the mandate that is set out in both documents. On the other hand, the implementation of disaster management also relies on the concept of mandated content in both documents. By means, there is a reverse relationship that the actions taken should be based on the laws, but if the implementation of the laws is not able to accommodate the needs, then the implementation will not be optimally performed. Hence, the legal framework is substantial to ensure the implementation of disaster management that is guaranteed by the law, covering the process of planning until the end of the program. Through the perspective of planning for sustainability, this situation represents the disaster management as part of the planning process (Berke et al., 1993). Hence, the implication of both spatial and development plans with disaster management of post-eruption Merapi 2010 is crucial in determining the decision making process in all governmental levels.

Findings:

The integration of spatial and development plans for the disaster management of eruption Merapi illustrates an attempt in ensuring the sustainability of the disaster management. This notion is applied by incorporating the aspects of disaster in the short-term and medium-term regional development planning, which illustrates the continuity of the development initiatives in the context of disaster management. In addition, the continuous phase and the transitional or overlapping period between phases also depict efforts in ensuring the sustainability of the whole phases that leads to the formulation of the cyclic process of disaster management. Accordingly, this findings support the previous argument that the disaster management process represent the concept of sustainability both in a continuum and inter-related activities as well as without the start and end of each activities (Jaques, 2007).

Overall, the recovery phase post-Merapi eruption has ended at the end of 2013. It can be summarized from the discussion above that the recovery phase reflects the implementation of disaster management with the integration of the sustainable development concept. It portrays the core of disaster management that applies the integration of both concepts, and then was delivered in many programs. Based on the observation, the

implementation of the program is not solely focus with the social approach of the community-based development, but also includes institutional management and finance aspects. Here, government established certain scheme for broader stakeholders' involvement. Participation of stakeholders, one of which is shown by the number of incoming funds results from national and international donors. Here, managing the budget of disaster management with many stakeholders involved is not easy. Hence, based on the built communication and coordination networks, the governments build cooperation and collaboration with various stakeholders to organize the activities. It represents that the involvement of multi-organizations shows the close interactions between governments and the NGOs in the disaster management programs. Accordingly, the analysis of interactions among stakeholders will be described in further section.

Findings:

The implementation of disaster risk reduction in the recovery phase of post-eruption Merapi 2010 portrays the government's commitment in implementing the sustainability aspect in the disaster management. Integrating disaster preparedness and mitigation in the spatial plans, and the medium-term and long-term development plans, shows the awareness in pursuing the sustainable development with regard to the efforts in achieving the target of MDGs (Millennium Development Goals) in 2015. It is also in accordance with the mandate of the Hyogo Framework of Action 2005 that the rehabilitation and reconstruction becomes a strategic opportunity for the implementation of disaster risk reduction to be integrated with the application of build back better and safer concept. Accordingly, this findings support the previous argument that the term disaster is considered substantial in defining the concept of sustainable development (Wisner et al., 2012). Here, it portrays the disaster management that has been incorporated in the planning process as the consequence of the development plans. Therefore, it is necessary and prominent to early consider disaster aspects in both spatial and development plans in Indonesia.

### *5.1.3. Development Phase: Managing Resilient Community*

As it is described in the previous sections, the disaster management of post-eruption Merapi 2010 includes the overlap activities between phases. The transitional period of early recovery are overlapped in order to prepare for the next recovery phase. In the recovery phase, synchronization of the disaster management and sustainable development concept becomes the foundation for achieving the long-term risk reduction goal and the resilient community. Hence, the development phase here represents the accumulation of the continuous series of the disaster management programs that has already begun gradually from the emergency response and recovery phases e.g. early recovery, rebuilding of housing, resettlements and infrastructure facilities, as well as the economic and social capacity building. By means, what has been achieved in the development phase is dependent and related to the accomplishment of the previous programs. Based on some respondents, which is actually performed in the development phase is to maintain what is already built in the previous phase,

in order to strengthen the resilient communities in facing the next disaster events (Sugiarto and Yunanta, 2014; Rianto, 2014).

Currently, the development phase of the post-eruption Merapi 2010 is still ongoing process. It is addressed with focus of the community-based economic empowerment, in order to achieve and manage the resilient community (Bappenas and BNPB, 2011). Hence, the achievement of the program cannot be said 100% completed, because it is still implementing the mentoring programs to strengthen the economic and social aspects of the community in achieving more resilient community. The main activities e.g. workshops, seminars, or socialization programs implemented by the PMU REKOMPAK as program coordinator and accompanied by the WB as the government's assistance. The program is aimed to maintain the resilient conditions and served as a continuous reminder for the communities to always be aware and should not be careless with the situation of Mountain Merapi.

Based on the observation, the prominent issue is that there is not much participation of stakeholders-particularly the NGOs-in this phase. As it is stated by a respondent, much humanitarian assistance come at the early phase after the disaster occurred i.e. assistances in building housing and settlements, as well as the training and workshops for the economic empowerment for several times (Rosita, 2014). Rosita (2014) continued, "... after economic training activities eg hair cutting, food industry, sewing is finished, some residents tried to continue but it did not last long. Which still continues just sewing, because many who use his services "(Rosita, 2014). This situation shows the reduced activities in the development phase, in the sense of the reduction of direct interaction between the stakeholders and the communities.

Based on the observation, several stakeholders i.e. NGOs are involved in this phase, but the frequency of interaction with the community is lower. For instance, the Combine Research Institute and UN Agencies are still actively communicating with BPPTKG Yogyakarta and the communities in carrying the information upon the status update of the Merapi's activity. Moreover, a routine communication is held by MDMC to monitor the villagers under its guidance, as well as delivering the voice of the people directly to the mayor via direct phones. It portrays the use of communication networks that was built since the emergency response phase. Furthermore, when there was an increase in the status of Mount Merapi on 28 April-2 May 2014, many NGOs perform spontaneous actions to visit the site and monitor the situation of the environment and the people. It represents aspects of prevention and preparedness in building resilience to deal with the next disaster. Eventually, this discussion shows that based on the observation, approaches has been delivered to build and maintain the resilience includes the physical endurance (houses and infrastructure), economic, and social elements. However, the success of this new program can only be seen after the next disaster occurred.

### 5.1.4. SWOT Analysis of Disaster Management Eruption Merapi 2010

Analysis in the previous section describes the mapping of activities, actors, locations, time, and the background implementation of the disaster management post-eruption Merapi 2010. Further, the integration of mission, vision, needs, and policy approaches in the implementation of disaster management is needed to map the strengths and limitations of the programs (Anjasni, 2013). Therefore, the SWOT (Strength, Weakness, Opportunity, and Threat) analysis is performed in this section. The result of this analysis is substantial as the basic consideration in formulating the solution approaches and recommendations that leads to further strategic planning approach. As presented by Anjasni (2013) that the identification of the components in SWOT analysis (e.g. beliefs and values, visions and missions, matches and mis-matches, strengths, and limitations) is important to undertake further strategic planning approach. Related to the focus of this research on the disaster management, sustainable development, and the involvement of NGOs, SWOT identification will be delivered through the perspective of institutional-political context and social-economic-environmental contexts, as it can be seen below:

Table 5.3. SWOT analysis of the disaster management phases of post-eruption Merapi 2010

<p><b>Strength</b></p> <p>Institutional/political context:</p> <ul style="list-style-type: none"> <li>- The establishment of disaster management program at national and regional scale</li> <li>- National support: the establishment of the Rehabilitation and Reconstruction Team of post-eruption Merapi 2010</li> <li>- NGOs' support: continued program of previous disaster management: tsunami Aceh, earthquake Bantul</li> <li>- Framework and approach are adopting the success of previous disaster management: build back better (safer), community-based development</li> <li>- Involvement of broader stakeholders</li> <li>- Accessible and prevalent news and communication → faster and easier coordination scheme</li> <li>- Sensitive, fast, and perceptive emergency response.</li> </ul> <p>Social/economic/environmental contexts:</p> <ul style="list-style-type: none"> <li>- Fertile location of Merapi area as the capital of economic activities (farming), beautiful and comfort mountainous region as the capital of tourism activities</li> <li>- Cultural norms and values: cultural cooperation and mutual assistance in the community, patience and optimistic nature of the society, adaptive community (community are easy to be influenced and nurtured), people give trust, believe, and obey the leader of the province (governor/Sultan)/regency/village/hamlet, the willingness of community to make their life (social and economic) better</li> <li>- Many sporadic community organizations or social group (self-initiative) supporting the disaster management.</li> </ul>	<p><b>Weakness</b></p> <p>Institutional/political context:</p> <ul style="list-style-type: none"> <li>- Limited human resources → lack of governmental commitment and capacity → corruption of aids and funding</li> <li>- Hampered political interest</li> <li>- Limited clear and legal rules of games of the involvement of the NGOs</li> <li>- The previous experience of the disaster management needs transitional period → time and labors consuming</li> <li>- Hampered governmental service</li> <li>- Lack and limited accurate data → for assessment, policy, decision making</li> <li>- Unfinished project of NGOs</li> <li>- Actions from NGOs and communities in accordance with the laws</li> <li>- Complex bureaucracy procedure</li> <li>- Gap of time with between the disaster event and the preparation for the disaster management (related to gap of funding and activities).</li> </ul> <p>Social/economic/environmental contexts:</p> <ul style="list-style-type: none"> <li>- People unwilling to evacuate early</li> <li>- People refuse to be relocated</li> <li>- People do not easily adapt to the new environment</li> <li>- People face the traumatic effects of disaster</li> <li>- Low level of education and skills → lack of human capacity in the social and economic competition</li> <li>- Low motivation in the community-based development programs</li> <li>- People still adhere to the traditional beliefs</li> <li>- People put less trust to the government</li> <li>- Lack of people's attention and interest in the environmental movement → abundant environmental condition</li> <li>- Low business management and skills.</li> </ul>
<p><b>Opportunity</b></p> <p>Institutional/political context:</p> <ul style="list-style-type: none"> <li>- Wider communication networks and cooperation</li> </ul>	<p><b>Threat</b></p> <p>Institutional/political context:</p> <ul style="list-style-type: none"> <li>- Finding the right formulation of disaster management</li> </ul>

- opportunity in the disaster management
  - The development of science and technology → related to the disaster management tools, management, for capacity building development of governments and communities
  - The implementation of good governance
  - Integration of spatial and development planning
  - Huge flows of aids and assistance from the NGOs
  - Get global attention from the fields of research, education, organizational or institutional aspect particularly in the disaster eruption
  - From managing disaster to managing risks.
- Social/economic/environmental contexts:
- The built of the physical facilities which are better than before (using better technology and materials)
  - Increased-environmental quality as the effect of the eruption (fertile land by volcanic materials)
  - Opportunity for the communities in getting the capacity building and development → education and skills
  - Open the investing networks in the disaster management (small and middle scale business) for private investor.

Source: Author (2014)

- Political interest from outsiders to influence movement against government policies
  - The involvement of broader stakeholders → need effective coordination
  - Lack of coordination among stakeholders about the distribution of aids
  - Unsynchronized regulations or planning
  - Lack of funding resources
  - Regional competitiveness → threat to the development and empowerment program → people with disaster has to compete with regular situation
- Social/economic/environmental contexts:
- Different perceptions of the disaster risks and hazard area among governments, communities, and NGOs
  - Eruption is inevitable disaster
  - Inadequate, uncomfortable shelters
  - Lack of legal/law compliance

Based on the SWOT analysis above, one of the interesting issues is the refusal of the community (villagers) upon the evacuation warning from the governments. Based on the observation, there is one example upon the death of a well-known local (traditional) leader of Merapi area that is known as 'Mbah Marijan' (Grandpa Marijan). According to some respondents, he and some relatives and followers were died due to the effect of the hot cloud that hit the hazard area where their houses were located (Zalik, 2014; Suhartono, 2014). Before the eruption occurred, Mbah Marijan and his followers have known eruption hazard warning and evacuation call, but ignored it and refused to be evacuated (Zalik, 2014; Suhartono, 2014). This portrays a situation that is motivated by several factors e.g. lack of knowledge about the disaster and hazard risk, the individual perception that the hazard will not bring misery, and although aware of disaster hazards, they still keep on their own faith that they was able to avoid the disaster. That represents a social behavior in the community to put trust in their local leader, and the personal perception is very strong in determining the actions that even influence the surrounding groups of people. On the other hand, this phenomenon also shows the limitation of the disaster management in eliminating the gap of perception and knowledge between communities and the governments.

Findings:

Gap of differences in perception and the lack of knowledge in the disaster management of post-eruption Merapi 2010 results drawbacks in the implementation. Therefore, eliminating this gap becomes a crucial issue in the disaster management. Here, the issues that arise in the disaster management show potential problems that lead to the slow or under development, one of which is caused by the lack of governmental commitment and capacity. One solution is that disaster management should formulate appropriate suitable governance that strengthens the capabilities and capacities of both public and private stakeholders. In achieving sustainable development commitment, it should struggle for solutions

by encompassing human, social, economic, political and environmental dimensions. Therefore, this findings support the previous argument that the governance structure that unable to meet this demand leads to the institutional failure (Ahrens and Rudolph, 2006).

Following the refusal of evacuation warning by Mbah Marijan, there is another limitation in the implementation of the rearranging the spatial planning of Merapi area. Currently, there are still some villages in the hazard area that are refused to be relocated. According to some respondents, the community has its own reason for rejecting e.g. the reluctance to leave the property and the original place of birth, the reliance on the old livelihoods as farmers that owned large fertile land, as well as the comfort, trust, and confidence that stay in the original location is still better than move the location offered by the governments (Saptadi, 2014; Laksito, 2014, Sugiarto and Yunanta, 2014; Suhartono, 2014). After the hazard area of Merapi is set in the Law of Spatial Plan of Sleman Regency 2011-2031 (Regional Regulation No. 12/2012 Sleman district), the existence of permanent settlements in the hazard area means to break the law. Facing this limitation, the government has made several approaches to the community e.g. having direct communication with the head of the village to deliver knowledge about disaster risk on the hazard area, proposing solicitation to the community to be agreed to be relocated to the safer locations, as well as the termination of all the basic facilities such as electricity and water in the hazard area. Currently, there are still people in the three villages who are refused to be relocated i.e. Kalitengah Lor, Srunen, and Glagarharjo villages. According to some respondents, besides the individual perception and personal motivation to stay, the phenomenon is also influenced by some external aspects: the supports of some NGOs who independently set up the supporting facilities in the hazard location e.g. the schools and health facilities (Saptadi, 2014; Laksito, 2014). This situation influences the community to use the facilities and become reluctant to leave. In addition, there are some political interests of the participating NGOs that apply different mindset and promote misperceptions in the community (Saptadi, 2014; Laksito, 2014; Rianto, 2014). Hence, what can be done by the government is to continue delivering the right knowledge, and build true perception among the community (Sugiarto and Yunanta, 2014; Saptadi, 2014). On the other hand, according to the respondents from the NGOs, this limitation even comes from both governments and NGOs. As stated by Rianto, 2014:

"I saw many wrong interpretations came from NGOs, and I also saw it came from some governmental persons. It was said (by NGOs) that living in the upper land (the disaster prone area) is a human right. They said that not allowing people to live there is against the human right. But the right is not the 'right to live there', but the 'right to live' itself. ... there is something wrong with the mindset, and when the right understanding is delivered and they keep refute it, perhaps there are more personal or political reasons behind it. ... still, we keep struggle and continue ask them to relocate, to gain better living. 'Better' should be represented by achieving safety in the future when the disaster comes, not solely better because they think their indigenous area today is more (economically)

beneficial than the relocation area. It is also the wrong perception when they solely think that live and die is in God's hand. It should be understood that human needs to address efforts in protecting their life. ... we keep giving advocacy (assistance) to the local governments, together with other stakeholders, so that they can properly implement the policies from central and regional governments related to Merapi area". (Pianto, 2014)

The rejection of the relocation programs portrays the situation of low trust from the community to the governments. Further, the biggest challenge is to eliminate the differences in perception and knowledge gap between them by delivering and raising awareness and knowledge of both entities. The situation shows that there are opportunities for NGOs play a role in the eliminating the problems between the governments and the communities in providing assistance to carry better disaster management. By means, efforts are needed in eliminating the gap of perception and understanding upon the risk of the disaster between the governments and communities, and perhaps for the NGOs themselves.

## ***5.2 Interactions among stakeholders: identifying the role of NGOs***

### ***5.2.1. The Interactions***

At the first eruption on October 26, there was no specialized board of disaster management in the regional level of governments. According to a respondent, the coordination of the disaster management was done at two levels: national level and regional level (Kuswiyanto, 2014). At the national level, the direct command came from the President to BNPB to coordinate the disaster response activities (Saptadi, 2014). This situation represents the implementation of top-down coordination as efforts to resolve complexity of disaster events. The first step taken by BNPB was to coordinate the relevant ministries e.g. Ministry of Public Works, Ministry of Finance, Ministry of Social, Ministry of Energy and Mineral Resources, and also involve local governments of Yogyakarta Province and Sleman Sleman Regency in the coordination (Bappenas and BNPB, 2011). After that, the disaster management was coordinated by the local governments, led by the Regent of Sleman Regency which is directly responsible to the Governor of Yogyakarta Province. This situation portrays the implementation function of the decentralized regional government, which has the power to control its territory. Hence, in the implementation, the local government is supported by other governmental institutions at the national level and working units at the local level. As previously mentioned, for instance, the status of Merapi activities is being monitored by the BPPTKG of Yogyakarta under the coordination of PVMBG and Ministry of Energy and Mineral Resources. In delivering the aids of daily logistics, local government is supported by the working units e.g. Social Service Unit and the Fire Department Unit of Yogyakarta Province and Sleman Regency.

After BPBDs of Yogyakarta Province and Sleman Regency are established, the coordination of disaster management on the regional scale is led by BPBDs. BPBDs coordinate directly with BNPB and directly responsible to the local government of Yogyakarta. Based on observation, on a regional scale, BPBDs establish

coordination with all involved stakeholders e.g. local governments, related working units, NGOs, communities, media, etc (Saptadi, 2014; Saptono, 2014; Laksito, 2014). This situation represents the top-down multilevel interaction, which is typically being adapted in a conventional disaster management approaches (Boin and McConnell, 2007). Meanwhile, Ostrom and Cox (2011) stated that the implementation of solely top down approach is potentially encountered difficulties due to the lack of communities' participation. Based on the observation, it can be seen that this situation can be avoided in the case of Merapi, in which interaction that occurs in a formal arrangement is not only limited to top-down command and coordination. Bottom-up process is also done e.g. by the regional government of Yogyakarta Province led by the Governor or the *Sultan* which delivered the aspirations of the people directly to the central governments and proposed disaster management actions from the central governments for Merapi. This situation portrays that the community involvement in the disaster management is substantial. Further, the central governments give positive response by establishing the Team of Rehabilitation and Reconstruction of Merapi Eruption 2010 with the focus on REKOMPAK program. This multilevel interaction among governments indicates a paradigm shift from more the top-down arrangement to the more bottom-up approach of disaster management (Yodmani and Center, 2001).

Findings:

For the case of Merapi, the coordination and collaboration in the disaster governance requires the combination of both approaches top-down and bottom-up planning. Related to the previous argument, this situation indicates the approach to avoid one single panacea for dealing with problems (Ostrom and Cox, 2010). It represents an analysis that the interaction among stakeholders needs flexibility. By means, the combination approach is seen able to deliver the specific solutions based on each characteristic of the issue in the post-eruption Merapi 2010. Here, this findings support previous argument that the approach of interactions in the disaster management needs to consider both top down and bottom up approach in order to provide wider involvement of the community (Yodmani and Center, 2001, Ostrom and Cox, 2010).

The diversity of types and scale of NGOs that are involved in the disaster management generates challenge in the interaction and relationships between stakeholders. Besides the complexity of disaster actions, delivering coordination among stakeholders is also not easy. It can trigger many unexpected situation in the disaster events, and often the decision must be taken within narrow time. This situation portrays that any response may be causing complexity to the new situation. This is when it takes the role of the coordinator who has powerful management capabilities. According to respondents, BPBDs as the coordinator of the rehabilitation and reconstruction of post-eruption Merapi 2010 hold the key role in leading the success of the coordination among stakeholders (Saptadi, 2014; Laksito, 2014). Putra (2014) adding that the coordination

among stakeholders is not solely becomes the key factor for the disaster management of post-eruption Merapi 2010, but also should become key factor for any disaster management.

“..it began with coordination, always, in the disaster, begin with coordination. The key words, first is coordination, second is coordination, and third is coordination”. (Putra, 2014)

#### Findings:

This research reveals lesson learnt that the unsolved problem of disaster management leads to the more complex situations: late response produce worst recovery homeworks. Although the late response is rarely seen in the disaster management of eruption Merapi 2010, the complexity is a potential threat to the sustainability of the disaster management. As it is argued, the multi-scalar system of the disaster management brings huge responsibility in managing multi-level and multi-scale governance (Tierney, 2012). By means, the contemporary societies of disaster governance are arranged within multilevel, multi-organization, and polycentric context with wide range of institutional and individual actors and wide political arena (Parra, 2010, Tierney, 2012). What happened in the eruption Merapi is representing the ability of governments as the main generator in the disaster governance, with supports of the NGOs. By means, the involvement of NGOs plays part to support the sustainable governance as the implementer agencies as well as the main generators of the governance (Mbe and Pathranarakul, 2006). Accordingly, this findings support the previous argument that the governments holds the central coordination in the disaster management, and the key factor is the transfer of resources between levels of government (inter-governmental coordination) as well as from outside entities to the authorities (Maldonado et al., 2010, Tierney, 2012).

In carrying out the disaster management of Merapi eruption, the BPBDs of regional Yogyakarta serve as the member of the Coordination Team of the Rehabilitation and Reconstruction of Post-eruption Merapi 2010. This team was set up by the central government in 2011. It arranges the disaster management of Merapi to involve broader participation of stakeholders, includes government institutions at national and local levels, the NGOs from the international to the local level, and the affected people (community) by disaster. Interaction among stakeholders is enhanced at the multilevel and multi-scale, arranged by the framework of the *Renaksi* or *Rencana Aksi* (Action Plan) document. Based on the observation, the document also arranges the active role of various scale and types of NGOs as stakeholders in the disaster management. For the case of Merapi, the involvement of the NGOs in the disaster management is prominent. For instance, the NGOs assist the financial management (the World Bank and the United Nations) and distribute donations and humanitarian assistance (e.g. Arbeiter-Samariter-Bund (ASB), Caritas Germany, the PMI Indonesia, Handicap International, IOM (International Organization for Migration), TV One, Combine Research Institute, and MDMC (Muhammadiyah Disaster Management Center)). Moreover, the NGOs also support the policy and decision making processes in the governmental levels. For instance, team of experts from the Gadjahmada University proposes the

rehabilitation and reconstruction planning for the resettlement program. In formulating the ideas, they make interactions with all stakeholders, includes the NGOs. This situation shows that the NGOs support the agenda with information and knowledge sharing from their related experiences. It represents the significant involvement of NGOs in the program e.g. major international NGOs as trustee and administrative agencies to support the management of the donations, and smaller NGOs act as facilitators in the community-based empowerment.

In certain cases, the involvement of the NGOs results some drawbacks and limitations in the disaster management. For instance, the NGOs that builds shelter in random locations without making coordination with the government. Based on observation, the NGOs omit the rules of the building codes and land use regulations. Today, the facilities are neglected and unemployed because it does not meet the needs of the community. Due to the illegal process in building the facilities, it creates difficulties for the local governments in maintaining and managing the assets. Those situations portray the dynamism of interaction among the stakeholders that results strengths and opportunities, or weaknesses and threats in the disaster management.

#### Findings:

Based on the observation, it can be identified that the involved stakeholders in the disaster management of post-eruption Merapi 2010 has delivering efforts in the coordination process. As it is mentioned by respondents, the awareness to achieve the same goal through the concept of 'build back safer' has motivated the actions that are brought in any interactions among the stakeholders or between the stakeholders and the community (Saptadi, 2014; Putra, 2014). From this analysis, it can be assumed that the coordination is substantial in the disaster management of post-eruption Merapi 2010. Accordingly, this research support more the argument by Kapucu et. al (2011) that the communication, coordination, collaboration, and cooperation are substantial aspects in building networking and partnerships among stakeholders in the disaster management.

Accordingly, it can be seen that the broad involvement of the stakeholders in the post-eruption Merapi 2010 creates challenges in the disaster management. On one side, it brings plenty resources for the development of the programs, but also creates dynamic situation in the interactions and relationships among stakeholders. As the representative of the GoI, the Coordination Team of the Rehabilitation and Reconstruction of Post-eruption Merapi 2010 becomes the key actor in the governance arrangement.

#### *5.2.2 The Role of NGOs*

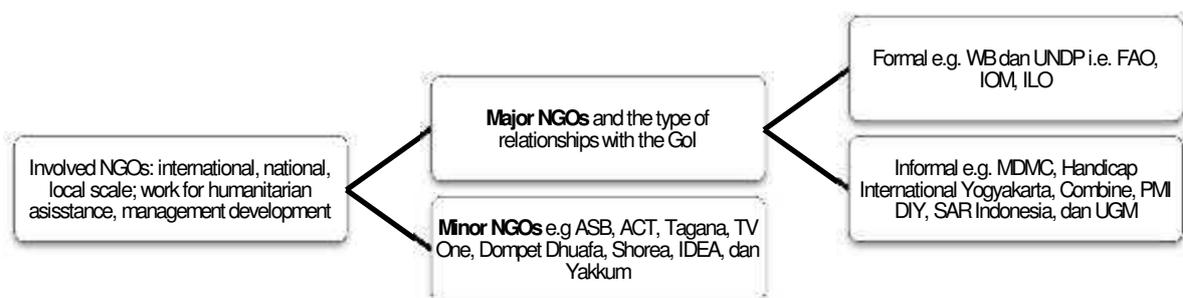
Based on the field research, it can be identified prominent NGOs that are involved in the disaster management of post-eruption Merapi 2010 (see: Appendix F). These NGOs are stakeholders that are deemed to be able to represent the interactions among the stakeholders. The analytical framework of interactions provided in this section refers to the theoretical approach in chapter 2. The interactions refers to the

communication, cooperation, coordination, dan collaboration that can be done by direct arrangement (face to face) or indirect (through another media or persons) (Saab et al., 2008, Kapucu et al., 2011). The identification is applied upon 16 NGOs with differ background and scale of organizations, in which most of them are national-scale NGOs that cover the humanitarian assistance.

Based on the implication of the activities in the post-eruption Merapi 2010, it can be categorized two major groups of NGOs: minor and major NGOs. In principle, the major NGOs are NGOs that have the consistency in delivering the contribution and address continuous commitment in all disaster management phases. Most of these NGOs may not engage much in the emergency response phase, but currently it is still involved in the disaster management until the last phase. Based on the relationships with the governments, major NGOs can be categorized into two: NGOs with formal relationship (with the MoU or agreement) and NGOs with informal relationships. Major-formal NGOs example is the WB and UNDP i.e. FAO (Food and Agriculture Organization), IOM (International Orgaization of Migration) Yogyakarta, the ILO (International Labor Organization). While the major-informal NGOs example is MDMC (Muhammadiyah Disaster Management Center), Handicap International Yogyakarta, Combine Research Institute, PMI (Indonesian Redcross) DIY, SAR (Search and Rescue) Indonesia, and UGM (Gadjah Mada University). Activities by major NGOs show a long commitment of NGOs to be engaged in disaster management, and it is supported by the availability of resources and sync with programs of their respective organizations.

Another group of NGOs are the minor NGOs who have partial and temporal contribution in the disaster management such as the provision of assistance only in the period of evacuation: delivering logistics, aids, and transportation or labors. As another example, the minor NGOs contribute only in the recovery stage as delivering the provision of cash, providing housing or other facilities. NGOs that contribute here for example ASB (Arbeiter-Samariter-Bund), ACT (Fast Action Response), Tagana (Disaster Response Team), TV One, Wallet Dhuafa, Shorea (Small Home Empowerment of Rural Activists), IDEA (Institute for Development and Economic Analysis), and the Rehabilitation Center Yakkum. Activities by these NGOs represent the short-term commitment of the NGOs in the disaster management program that can be caused by the limited resources and programs of the NGOs. Furthermore, the categorization can be described as follows:

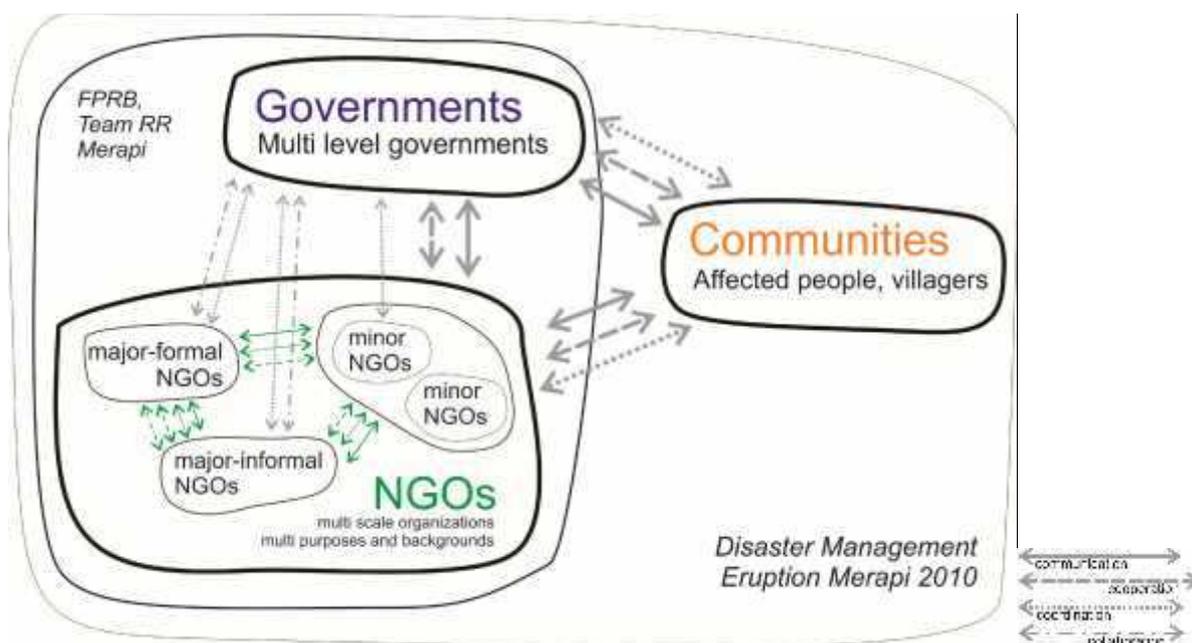
Diagram 5.2. Categorization of involved NGOs in the disaster management eruption Merapi 2010



Source: Author (2014)

Based on the analysis above, it can be identified the pattern of interactions among stakeholders with the primary focus of the role of NGOs. As it is described in chapter 2, the parallel use of the four indicators represents the level of interaction, started with informal relationships: communication (related to exchanging information and tools for the next interaction), followed by cooperation (a primarily verbal dialogue and takes place in informal settings, stakeholders present a need that could satisfy another organization without a formal contract or agreement), coordination (more formal than cooperation, could use a formal forum, a step toward further and more enhanced cooperation, stakeholders find that their individual goals are similar ), and the latter is the formal relationships: collaboration (when stakeholders share the authority and responsibility for planning and implementing an action to solve a problem). In principle, the interaction does not limit the number of indicators to be applied at the same time, and does not limit the number of stakeholders involved in a single indicator. It represents that multi-indicators can happen in one interaction that takes place between two stakeholders e.g. in organizing the collaboration, the NGOs and the governments deliver communication for exchanging the information, and the cooperation occurs in the spontaneous evacuation process (all stakeholders merge into one activity). Moreover, the coordination occurs between the governments and NGOs in delivering the information of activity status of Mount Merapi, and the collaboration occurs in the way the governments and NGOs provide community residential facilities in the form of the funding, mentoring, and provision of building materials. Overall, the scheme of interaction between stakeholders with the main focus of the role of NGOs can be summarized in the diagram and table below:

Diagram 5.3. Interactions among stakeholders in the disaster management eruption Merapi 2010



Source: Author (2014)

Table 5.4. Analysis of interaction among stakeholders in the disaster management eruption Merapi 2010

Involved stakeholders	Media/facilitation/forum	Form of the interactions based on 4C-indicator (communication, cooperation, coordination, collaboration)	Prominent Issues	Implications
Between/among governments	Team RR Eruption Merapi 2010 interacts by in the planning, decision and policy making process by meeting, field visits.	<p>Communication, cooperation, coordination.</p> <p>Interactions are delivered based on the direct mandate from the President, by the coordination of BNPB (national level). The coordination at the local level is lead by BPBD. Interaction is combination of top down (from president to central government, from central to regional government) and bottom up (from regional government proposes programs and funding proposal to national government).</p>	<p>There was no specialized institution in the regional level when the disaster event occurred. The role of regional government s as the coordinator determines the success of emergency and early recovery processes.</p>	<p>The transitional period is crucial, the transition of institutional-task-knowledge transfer need to compete with the lack of time and the urgent needs of affected people.</p>
Governments and community	Informal meetings, socialization of programs, workshops, personal communication through phones, emails, letters.	<p>Communication, cooperation.</p> <p>Network of communications is built through the leader of the regional area as key speakers. The role of local leader is bringing the voices to higher governmental level and delivering government's policy to the community. Cooperation is held in the form of cleaning the damage, building houses, and all the implementation of disaster management programs.</p>	<p>Different language is the biggest barrier in the communication. Bias of communications: different mindset and information from NGOs or outsiders that deliver different interpretation upon disaster risk to the people and against government policies.</p>	<p>The role of Sultan as the leader of the society determines the way people obey the law and support the disaster management → by delivering local values and norms approaches → people put trust to their leaders.</p>
Governments and NGOs	FPRB, formal and informal meetings, continuous interactions by direct and or indirect meetings.	<p>Communication, cooperation, coordination, collaboration.</p> <p>Communication is done through a representative institution or organization, or if it has a close interpersonal relationship (an old friend, fraternity).</p> <p>Cooperation occurs in the workshop, training, assistance, etc. Promoters can be from one side, and the other as support participants.</p> <p>Through the built communication network, the government as a program coordinator shared duties and functions as set by laws. Informal coordination occurred</p>	<p>Some representative of central governments stated that there is no interaction between governments and NGOs. Meanwhile, NGOs i.e. WB, MDMC, Combine stated that they make coordination, communication, cooperation with governments.</p> <p>There is no clear and detail regulations and rules of games for the interactions. Some minor NGOs 'break' the regulations in providing facilities without coordination with the governments, because they avoid the too long bureaucracy and budget.</p> <p>Interaction has been largely in the form of informal</p>	<p>Need clear and detail regulations to control and manage the involvement of NGOs in the disaster management.</p> <p>There are no clear and detail rules of NGOs' engagement → NGOs can enter in all fields and aspects of disaster management, occur sporadically and spontaneously, e.g. direct assistance to the community, NGOs simply provide information to the local government (via phone or letter) that they will provide assistance.</p> <p>Informal relationships become strength in developing the</p>

Involved stakeholders	Media/facilitation/ forum	Form of the interactions based on 4C-indicator (communication, cooperation, coordination, collaboration)	Prominent Issues	Implications
		<p>in FPRB and other informal forums.</p> <p>Collaboration in the form of formal relationships between Governments and major NGOs i.e. World Bank and UN by establishing the MoU.</p>	<p>relationships to gather information, to coordinate the distribution of aids.</p> <p>Good relations with major NGOs related to the foreign funds distribution, mostly applied for the early recovery phase.</p> <p>The tasks and functions of NGOs began to set sequent after BPBDs was established → rather an informal coordination → settings related to the available resources of each NGO e.g. knowledge, management skills, aids, logistics</p>	<p>communication network and faster coordination among stakeholders. Leaders of the local region (head of village, regent, and governor) provide opened and direct communication that can be accessed by public to deliver their voices → eliminating the gap level of bureaucracy, accelerating disaster response.</p> <p>Governments serve the continuous coordination of programs and activities in order to not overlap each other, by communication in formal and informal forums, direct personal communication.</p>
Between/among NGOs	FPRB, other informal forum, personal or small group's interactions.	<p>Communication, cooperation, coordination, collaboration.</p> <p>Communication and cooperation occur in the interest of sharing information, especially about the data about disaster. NGOs have clusters; each group represents the field of work and networks.</p> <p>Coordination occurs in the implementation of the program refer to the results of coordination between the governments and the NGOs.</p> <p>Collaboration among NGOs occurred in the same cluster e.g. UNDP, Combine Research Institute, and IDEA → conducting the assessment, evaluation, and monitoring of the ongoing programs or completed programs.</p>	<p>Interaction between major and minor NGOs, between local and minor NGOs → occurs sporadically and spontaneously, some of the networks are already built as the results of past disaster experience (Bantul earthquake 2006).</p> <p>Interactions between major and minor NGOs occur in the needs of communication, cooperation, and coordination of the implementation programs from each organization.</p> <p>Collaboration among major NGOs occurs in related to the supports from major-informal NGOs to the major-formal NGOs in finishing the tasks.</p> <p>Long commitment of major NGOs shows the consistency and commitment on the agreement with the governments, supports by the awareness and voluntary participation in the disaster management, in accordance with the vision and mission of each organization.</p>	<p>Individual movement of the NGOs → depends on their own interest and needs → random and less organized interactions</p> <p>The FPRB as efforts in facilitating the activities of NGOs → some of NGOs still work in their own ways → different mindset with the governments → limitation of disaster management</p> <p>Major NGOs set collaborations with minor and local NGOs → use localities in facing specific problems</p>

Involved stakeholders	Media/facilitation/forum	Form of the interactions based on 4C-indicator (communication, cooperation, coordination, collaboration)	Prominent Issues	Implications
NGOs and communities	Direct aids and logistic, and assistance by face to face or via regional/local governments.	<p>Communication, cooperation, coordination.</p> <p>Communication is achieved through the third party e.g. press media in delivering news about the damage and losses, then the NGOs use the data to organize the humanitarian assistance.</p> <p>Cooperation occurs when the NGOs work with the local communities deliver the emergency actions of rescue and making the constructions of the house and the facilities.</p> <p>Coordination occurs between NGOs and the key persons of the communities, particularly in the data collecting and updating about the status of Merapi's activities.</p>	<p>The information delivery to the community was done freely, anytime → big influence of the NGOs in delivering and transferring knowledge, or reversely the inappropriate information. There is no specific framework or tools for controlling the information that reached the community.</p> <p>Some approach to the community ignore the local norms and values → create misunderstanding e.g. aids that is delivered in impolite ways (according to the community) → refusal of the aids.</p>	<p>The framework in managing the involvement and interactions of the NGOs need to be more organized and monitored → need clear and detail regulations and monitoring planning and actions.</p> <p>Need locality approaches → activities by NGOs need to coordinate with local governments or communities.</p>
Governments-NGOs-communities	The whole disaster management programs e.g. workshops, disaster simulations, field visit (monitoring), and focus group discussions.	<p>Communication, cooperation, coordination, <b>collaborations</b>.</p> <p>Includes broader level and scale of institutions and organizations, all types of communities.</p>	<p>Interactions occurs in the activities e.g. simulation of disaster emergency response which involve broader stakeholders e.g. national and regional governments, international, national and local NGOs, and all communities.</p> <p>Specific programs is delivered to reach all types of communities e.g. education center for children, social service center for women empowerment, business or small industries for adults (productive age), and mentoring of social activities for elderly and disables.</p>	FPRB or the similar forums → effective facilities in serving the coordination among stakeholders → the members are all level and scale of governmental institutions and NGOs.

Source: Author (2014)

As illustrated in the table and diagram above, the interactions involving the NGOs are associated with other stakeholders: governments and communities. Externally, the NGOs interact with the community, especially in terms of providing direct assistance e.g. aids, logistics, and facilitation of the economic and social recovery. Overall, NGOs and governments interact in the communication and coordination that is facilitated by the FPRB. External interactions with the government are carried out in the framework of formal partnerships and informal

partnerships. Interaction between NGOs (internal interactions) can be an opportunity for NGOs to complement each other and support one another programs. This situation represents the role of NGOs in supporting disaster management activities that span relationships with all stakeholders. The interactions among stakeholders occur mostly in the form of informal relationships and temporal flexibility. This situation represents adjustments to the disaster management programs that are mostly consists of short term programs e.g. infrastructure development, housing development, meeting the needs of emergency logistics, health and social services. The better interactions of the NGOs support the strengths of the disaster management. This can be influenced by several factors e.g. human and capital resources of the NGOs and the invited stakeholders in the interactions. If this aspect is not fulfilled according to the needs of the community, it could be problems and resulting limitations that hinder the process of the program implementation. This discussion is summarized in a SWOT analysis of the involvement of the NGOs, as it can be seen in the following diagram:

Table 5.5. SWOT analysis of the involvement of NGOs in the disaster management of eruption Merapi 2010

<p><b>Strength</b></p> <ul style="list-style-type: none"> <li>- Human resources and capital resources</li> <li>- Broader networks</li> <li>- Sources of funding, management and administrative capacity</li> </ul>	<p><b>Weakness</b></p> <ul style="list-style-type: none"> <li>- Lack of human resources and capital resources</li> <li>- Temporary activities → short commitment, short time involvement</li> <li>- Lack of detail and clear regulations of the involvement of NGOs</li> </ul>
<p><b>Opportunity</b></p> <ul style="list-style-type: none"> <li>- Partnerships (business opportunities) in the disaster management</li> <li>- Bridging governmental limitations in capacity, finance, knowledge, resources</li> <li>- Long commitment and involvement in disaster management → build networking worldwide</li> </ul>	<p><b>Threat</b></p> <ul style="list-style-type: none"> <li>- Long and complex governmental bureaucracy procedures → NGOs has limited time → tends to avoid the legal procedures</li> <li>- Different mindset with the government → different interpretation of policies → influences community to against the law</li> <li>- Unfinished project → leaving complex problems e.g. build shelter in appropriate area without preliminary assessment and coordination with governments → leaved abundant facilities with land acquisition problems, could lead to criminal issues</li> </ul>

Source: Author (2014)

**Findings:**

Based on previous analysis, it can be summed up major findings upon the role of NGOs in the disaster management of eruption Merapi 2010 as follows:

- One role of the NGOs is distributing and managing the funding from donators. Here, bigger (international scale) NGOs support not only distributing the donations but also assisting the funding management. For instance, the NGOs e.g. the World Bank serves as the trustee agency, and the UNDP serves as the administrative agency. This situation represents the role of NGOs as active entities in the governance arrangement. Referring to the concept of governance, NGOs here is in accordance with part of the governance that play roles as actors or stakeholders in the

decision making process (Nakagawa and Shaw, 2004), as major mechanism in solving problems (Brown, 1991), and as key actors in the conflicts (Affolderbach et al., 2012)

- As it is mentioned before, the interactions among stakeholders in the post-eruption Merapi 2010 depicts opportunity for NGOs to play role in eliminating the problems between the governments and the communities in providing assistance to carry better disaster management. Certain situation portrays the role of NGOs in bridging the gap of perception between government and communities by delivering the policy with the local language in order to be understood and accepted by the local communities. It can be seen here the ability and resources of NGOs in carrying the objective of the programs to be accordanced with the character of local communities becomes the major influence in supporting the whole programs. Accordingly, this finding support the argument that through the sustainable development concept, the role of NGOs can be represented as the 'bridging organizations' which bring together constituencies that are divers on many dimensions but having the same interests (Brown, 1991)
- The role of NGOs as supporting actor and the community's cooperation in running the program is also important. For instance, the main activities e.g. workshops, seminars, or socialization programs implemented by the PMU REKOMPAK as program coordinator and accompanied by the WB as the government's partners. Accordingly, this finding supports the previous argument that the involvement of NGOs in the disaster management plays part in supporting the sustainable governance: together with the governments, NGOs serve as the agencies and main generators of the disaster governance (Mbe and Pathranarakul, 2006)
- Through the institutional-political context, NGOs serve the disaster management of post-eruption Merapi by contributing tasks through the FPRB. In this forum, major NGOs e.g. the World Bank serves to support governmental position in the discussions and debate among involved stakeholders. For instance, in delivering the policy on the KRB (hazard zones) area and how to transfer the right knowledge and information to be accepted by all entities. Therefore, this finding supports the previous argument that NGOs is seen as scientific 'boundary organization' which establish empirical foundations for debate that are acceptable and credible to all parties (Affolderbach et al., 2012). Here, the NGOs play tasks in evaluating scenarios, advising the decision makers, and mediating interests among multiple groups (Affolderbach et al., 2012). Further, NGOs are also be seen as 'bargaining organization' which contributes in both formal and informal interactions among entities (Affolderbach et al., 2012). It emphasizes the necessary of NGOs as social institutions to create adapting institutions that fit with any social demands. By means, NGOs plays part in the relationships among various types of associations, networks, cross-sector partnerships, political coalitions, social movements, and community participation in the governance arrangement (Brown, 1991)
- The involvement of NGOs in many programs of disaster management post-eruption Merapi represents the support NGOs in supporting the agenda with information and knowledge sharing from their related experiences. This situation portrays the useful resources of the NGOs that can be useful in supporting the programs e.g. highly knowledgeable human resources, big funding sources, and wider networks. As it is stated, because of having potential wide networks and various management type (from local to global), and the capability of producing global communication techniques, NGOs is seen as flexible entities to serves in multilevel and multi-scale governance (Affolderbach et al., 2012). By means, the NGOs contribute the catalisation of the growth of the disaster governance. Hence, this finding

supports the previous argument that when the NGOs contributes in catalyzing the growth of a new institutional arrangement, it roles as the sources of innovation (Brown, 1991)

- In certain cases, the involvement of the NGOs results some drawbacks and limitations in the disaster management. For instance, the NGOs that builds shelter in random locations without making coordination with the government. Based on observation, the NGOs omit the rules of the building codes and land use regulations. Today, the facilities are neglected and unemployed because it does not meet the needs of the community. Due to the illegal process in building the facilities, it creates difficulties for the local governments in maintaining and managing the assets. This situation represents the role of NGOs and the governments in influencing the limitations of the disaster management. On one side, the contradicted vision and mission of the NGOs and the governments generates potential conflicts. On the other side, in the lack of resources in the governance structure in controlling and addressing integrated disaster management is potentially leads to the underdevelopment and failure of the disaster management (Tierney, 2012, Ahrens and Rudolph, 2006). As it is stated, while there are plenty images of the role of NGOs in the success of humanitarian aids delivery (Twigg and Steiner, 2002), in fact, they often solely serve the disaster activities based on certain context and scale (Tierney, 2012). Therefore, this finding supports the notion that the limitations of the NGOs can influence the fragmented and unbalanced disaster governance regime (Tierney, 2012).

## Chapter 6

### Conclusions and Recommendations

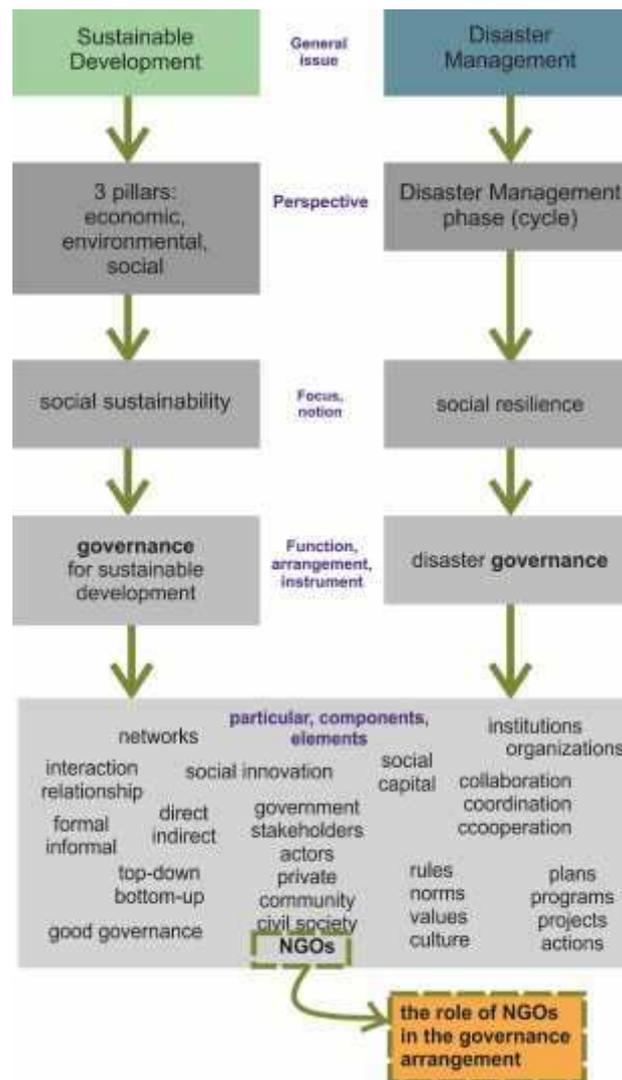
This chapter wraps up the discussion about the research. It aims to give a clear conclusion about the theoretical gaps of research problems that is used in the research. In addition, this chapter provides recommendations to be used as input and reference to governments, stakeholders, and other actors in the situation of: 1) giving assistances and aid programs of disaster management, and 2) organizing themselves to be optimally well-involved in disaster management programs. Therefore, this chapter is seen as an attempt to response to the main research questions of this study.

The research interest upon the disaster management and the role of NGOs becomes the originator in writing this research. With a case study of Merapi eruption 2010, the discussion and analysis has brought the specific character of the typical disaster management in developing countries, particularly for the region of Southeast Asia. In the field research, observation and in-depth interviews are used as the main data collection method to figure out the role of NGOs in the disaster management. The main obstacle at this stage is the time constraint from the respondents, in which unfinished face-to-face interview was continued by email correspondence. Communication through this approach has some limitations e.g. long respond from the respondents, unclear answers, and difficulties to get confirmation upon some unclear answers. Further, disaster management phase and stakeholders analysis is made as the basis of the approach that leads to the findings of interactions type among stakeholders. Search for answers to the main research question became the main concentration in this research, which has been analyzed in the previous chapter. Based on the development of research and observation, discussion about the involvement of NGOs in the disaster management post-eruption Merapi 2010 is closely related to the context of sustainable development, especially how the NGOs play a role in the interaction among stakeholders. Accordingly, it can be summarized some concluding remarks and recommendations as follows:

1. The search on the integration between disaster management and sustainable development concepts becomes the umbrella notion in developing this research. Hence, based on the literature review and case study observations, it can be revealed major points as follows: 1) sustainability in the disaster management is grounded on the overlap or transition period between phases and 2) each aspect of sustainable development are major to be sustained in every phase. It is intended to achieve an integrated disaster management i.e. disaster management with vision, mission, and subject to provide sustainability in every aspect of life.

2. The way disaster management is integrated with the sustainable holds the key to the implementation of disaster governance. It represents the capability of the system to deliver aids and assistance, as well as the way it practices the sustainability approach. In the end, the concept sustainability is not just an approach by suggestion, but becomes a necessity. Accordingly, this research shows that by delivering the sustainability approach, many complexity problems can be solved in disaster management. Further, this mindset is substantial to be agreed, understood, and implemented by all involved stakeholders; due to the stakeholder as the fundamental engine of the disaster governance
3. Overall, the search and discussion on the integration part between the notions of disaster management and sustainable development is ended up with the importance of the disaster governance. The development of the analysis based on the theoretical framework that develops the notion from the general issue into the particular. Through the perspective of three sustainable development pillars, the findings support the substantial aspect of social sustainability as the basis for the development of sustainable disaster governance. Meanwhile, through the concept of disaster management, the notion social resilience becomes the aim of the disaster management operations. The notion represents the vision, goal, and objective that are desired to be achieved through the integration of both concepts. Eventually, each concept finds the meeting point in the term of governance. The elaboration of disaster for sustainability integrates with the elaboration of disaster governance: both concepts are the function, arrangement, and instrument in achieving sustainability. This function has similarities of particulars (components, elements) and characters in the arrangement i.e. involving broader stakeholders; involving communication, collaboration, coordination, and cooperation in building the networks, interactions, and relationships. By means, it serves delivering tasks of plans, programs, projects, and actions (implementations); it occupies rules, norms, values, and cultures in function; and facilitates the emergence of social innovation and the role of social capital as the basis resources. It can be concluded that related to the search of the role of NGOs in the integration of disaster management and sustainable development, it refers to the role of NGOs in the governance arrangement.

Diagram 6.1. Conclusion: the integration of disaster management and sustainable development



Source: Author (2014)

4. Disaster governance is necessarily lead by the government as the main legal bureaucracy in the state. This commitment brings the following implications: 1) government as a key entity in forcing the laws and regulations, by means, they hold the power and substantial position as an executive system of the regulator, 2) as the main generator in the disaster governance, government cannot work alone, but need the support of the NGOs that can function as a management expert, supporting field implementation by delivering approach to the community, as business partners, and as parties that provide input based on the results of monitoring and evaluation activities
5. The role of NGOs in disaster management is very broad; depending on the formulation the is desired by the governance disaster. Here, the actions of the government in making the disaster management plan will determine its subsequent implementation. Based on the observation in the case study, clear and

detailed laws and regulations are substantial in managing the involvement of NGOs and facing the complexity problems that often arise in the interactions among stakeholders

6. Based on observations in the case study, it can be summarized that the role of NGOs in disaster management is as follows: 1) NGOs as a bridging organization in delivering the aspirations of the people to the government, or reversely to deliver the government's policy with the right approach to the community, 2) NGOs as administrative and trustee agency that helps the government in terms of the management of funds from international donors, 3) NGOs have the potential space to create drawbacks and limitations in the way it resists the government policy (to have perception that is not in line with the government's policy), 4) NGOs as assistance partner (facilitators) is part of the community in implementing the government policy, by means that the either NGOs and the community can reversely share knowledge and experiences, and 5) NGOs as networkers to support the interactions among stakeholders in the disaster management by delivering communication, coordination, cooperation, and collaboration. Here, NGOs are seen to be able to fill the gap of information and activities in the disaster management phase as the basis for the next phase
7. Accordingly, this research proposes some recommendations for further disaster management with similar characteristics as follows:
  - Need to apply synchronization and integration upon the vision, mission, goals, and mindset in processing the valid and accurate information to be delivered to the public. Moreover, they need to set up detailed and clear laws and regulations that govern the involvement of NGOs in disaster management, including penalties when they break the law. In this term, the role of government as regulator holds the key aspect to the successful planning and implementation. This can be done by the central and local governments to strengthen an integrated action plan at the national and regional levels
  - Need to strengthen the role and function of BPBDs in preparing for further disaster, related to the BPBDs a newly formed institution. Monitoring activities should be conducted regularly and eventually in every phase of disaster management. Distribution of types of activities and actors should be done evenly, not only focused on the recovery phase. This can be organized and managed by local governments to strengthen an integrated action plan at regional level
  - The plan of disaster management particularly for the Merapi area still needs to be integrated with spatial planning process among institutions in many levels, in order to produce comprehensive spatial plan document of National Spatial Plan (RTRWN), Spatial Plan of Yogyakarta Province, and Spatial Plan of Sleman Regency. Further, it needs a legal regulation to be an umbrella of Merapi area protection and development in which will cover all rules of game includes the role of NGOs in

participating the disaster management. This can be done by the central and local governments to strengthen an integrated action plan at the national and regional levels

- The spatial planning process, particularly in determining spatial structure and pattern of the development region should also carefully consider the development of disaster management in Merapi area, closely associated with regional economic, social, and environmental aspects. It needs detail measurement of the disaster impact to the regional scale of Yogyakarta Province, the social impact of the way community built resilience upon the disaster, and the environmental impact to the existing natural resources, including the hazard risk
- The plan of disaster management should count the development of surrounding areas in order to occur a widespread balanced development thus can avoid biggest disaster impact as well as share the burden of the disaster impact
- In order to build social and economic resilience, it is suggested to invite more private investors in the Merapi area i.e. in supporting the disaster management programs. For instance, the approach can be utilizing the existing and new investment and legal/institutional schemes, thus defining the implementation of key pillars development in the region. Hence, the investments arrangement shall be constructed to attract and involve multi-stakeholders e.g. under Public Private Partnership and/or government and donors.

Accordingly, it could be defined that the disaster actions of post-eruption Merapi 2010 is becoming one of the government's efforts to deliver an integrated disaster management. As it can be seen through the integration of both spatial and development planning documents, the approach of sustainable development context has been delivered by struggle in the disaster planning and implementation. Hopefully, the more integrated disaster management in the future can always develop and maintain its sustainability, and provide better lesson learnt to be adapted in other disaster locations particularly in Indonesia.

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## Appendix A

Table A. Questions for interview guideline

Questions	Terms/Concerns
Could you please specify your full name, the institution where you work for, your position in the office, your period of work, and your educational backgrounds?	Building basic information about the stakeholder; to be used in the stakeholder analysis
Could you explain your (representing yourself either the institution where you work with) involvement in the activities (programs) of post-disaster rehabilitation and reconstruction of the Mount Merapi eruption in 2010?	Disaster governance; position in the disaster governance-structural organization
Could you explain more about the activities (programs) that you are (were) involved with?	Disaster governance; tasks and functions in the program
Could you explain the activities (tasks and functions) that you have done (or in ongoing process) in the program?	Disaster governance; tasks and functions in the program
What is your biggest concern on the projects-related to certain issue (in the post-disaster programs)? Why?	Disaster governance; sustainable development-visions
Was the project involving the non-governmental organizations (NGOs)? What types (names) of NGOs was involved? How was the involvement influencing your activities (in the post-disaster programs)?	Disaster governance; visions of NGOs
Was the (planning) process also involving (another) NGOs? In your point of view, what comes out of the NGOs involvement?	Disaster governance; planning and decision making process; relation and interaction with other stakeholders; the role of NGOs
What are the weaknesses and the strengths of making the partnership and coordination (with other stakeholders)? How do you address the issues?	Disaster governance; planning and decision making process; relation and interaction with other stakeholders
How do you run the partnership and coordination (formal and informal) with various stakeholders (inter-agency and inter-individual)? How do you run the direct and indirect coordination with them? How was it going with the NGOs?	Disaster governance; planning and decision making process; relation and interaction with other stakeholders; the role of NGOs
To what extent that you were involved in the planning and decision-making processes in the governmental levels?	Disaster governance, sustainable development-visions; planning and decision making process
The partnership programs, does it have MoU (memorandum of Understanding), agreements? Or is it just an informal partnership? Could you give some examples (of the activities)?	Disaster governance; planning and decision making process; relation and interaction with other stakeholders
How did you do the coordination process: through face to face meeting, emails, phone calls, sms (short message services), or having the third parties as connector? In what situation it was held? For instance, when you need to do the coordination-as PM-, what steps did you address?	Disaster governance; planning and decision making process; relation and interaction with other stakeholders
What is the difference in doing the coordination between you and the government, and between you and other NGOs?	Disaster governance; planning and decision making process; relation and interaction with other stakeholders
What is your opinion about the process of the post-disaster rehabilitation and reconstruction of Mount Merapi eruption 2010? Could you give some expectations, suggestions, and feedback for better implementation of further disaster management?	Sustainable development-visions; planning and decision making process

Source: Author (2014)

## Appendix B

Table B. Coding: Key terms and the features of the interview

Sustainable development	Disaster management	NGOs
<ul style="list-style-type: none"> <li>• Planning process</li> <li>• Economic growth/development</li> <li>• Environmental improvement</li> <li>• Social sustainability</li> <li>• Social capital</li> <li>• Governance</li> <li>• Transition management</li> <li>• Change</li> <li>• Collaboration, collaborative</li> <li>• Participation</li> <li>• Community-based</li> <li>• Government</li> <li>• Stakeholders</li> <li>• NGOs</li> <li>• Integrated sustainable development</li> <li>• Build back better</li> <li>• Build back safer</li> <li>• Social capital</li> <li>• Social innovation</li> <li>• Trust</li> <li>• Living with disaster in harmony</li> <li>• Planning</li> <li>• Development</li> <li>• Leaders</li> <li>• National, regional, local, international</li> <li>• etc</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigation</li> <li>• Preparation</li> <li>• Preparedness</li> <li>• Response</li> <li>• Emergency</li> <li>• Recovery</li> <li>• Rehabilitation</li> <li>• Reconstruction</li> <li>• Change</li> <li>• Collaboration, collaborative</li> <li>• Participation</li> <li>• Community-based</li> <li>• Stakeholders</li> <li>• Governance</li> <li>• Government</li> <li>• NGOs</li> <li>• Integrated disaster risk management</li> <li>• Build back better</li> <li>• Build back safer</li> <li>• Social capital</li> <li>• Social innovation</li> <li>• Trust</li> <li>• Living with disaster in harmony</li> <li>• etc</li> </ul>	<ul style="list-style-type: none"> <li>• Tasks</li> <li>• Coordination</li> <li>• Collaboration</li> <li>• Cooperation</li> <li>• Networks</li> <li>• Interact etc</li> <li>• Relationships</li> <li>• Top-down, bottom-up coordination</li> <li>• Formal-informal</li> <li>• Performance</li> <li>• Social capital</li> <li>• Governance</li> <li>• Government</li> <li>• Communities</li> <li>• NGOs</li> <li>• Civil society</li> <li>• Trustee agency</li> <li>• Managers</li> <li>• Administrator</li> <li>• SOP</li> <li>• Management</li> <li>• etc</li> </ul>

Source: Author (2014)

## Appendix C

Table C. List of respondents

Transcript number	Name of respondents	Institutional level	Institution/Position	Date of interview
1	Ir. Kuswiyanto, MSi	Central/National Government	National Development Planning Agency (Bappenas)/Head of Sub-Directorate of Disaster Prone Areas	25/04/2014
2	Ir. Hutomo M. Eng	Central/National Government	National Disaster Management Agency (BNPB)/Head of Sub-Directorate of Rehabilitation of Housing and Settlement	21/07/2014
3	Ir. Sugjarto and Yunanta Arief Rusmana	Central/National Government	Ministry of Public Works, Directorate General of Cipta Karya, Rekompak Program/Monitoring & Evaluation (Monev) and Complain Handling Resolution (CHR) Expert and DRM (Disaster Risk Management) Specialist	28/04/2014
4	M. Taufiq AR	Regional/Provincial Government	Regional Development Planning Agency (BPBD) of Yogyakarta Province/Staff-Regional Planner	04/06/2014
5	Ir. Gatot Saptadi	Regional/Provincial Government	Regional Disaster Management Agency (BPBD) of Yogyakarta Province/Head of BPBD of Yogyakarta Province	29/04/2014
6	Arif Setio Laksito, ST, M.Dev.Plg	Local/Regency Government	Regional Development Planning Agency (BPBD) of Sleman Regency	30/04/2014
7	Heru Saptono, STP, MM	Local/Regency Government	Regional Disaster Management Agency (BPBD) of Sleman Regency/Head of Prevention and Preparedness Division	02/05/2014 11/06/2014
8	Tri Dwi Budi Rianto	Non-Governmental Organization (international)	World Bank/Consultant, Community-Based Housing Specialist	02/05/2014
9	Mart Widarto	Non-Governmental Organization (international)	United Nation Development Program (UNDP)/Individual Consultant	11/06/2014
10	Slamet Suhartono and Priyo A. Sancoyo	Non-Governmental Organization (national)	MDMC (Muhammadiyah Disaster Management Center) of Sleman Regency/Secretary and Volunteer	30/04/2014
11	Elanto Wijoyono	Non-Governmental Organization (local)	Combine Research Institution/Program Coordinator	30/04/2014
12	Mr. Ika Putra, M.Eng., Ph.D	University	Gadjah Mada University (UGM)/Lecturer, Experts	29/04/2014
13	Ngatinah	Villager	Resident/villager	28/04/2014
14	Umi Rosita	Villager	Resident/villager	01/05/2014
15	Zalik and Muji	Villager	Resident/villager	01/05/2014
16	Cheria Noezar	Non-Governmental Organization (international)	Handicap International-Yogyakarta	02/06/2014

Source: Author (2014)

## Appendix D

### Consent Form\*

#### “The Role of Non-Governmental Organizations in the Integration of Disaster Management and Sustainable Development”

##### Interview Description

- Conducted by Patri Ismayasti, this interview is part of data collection process on the research about the role of Non-Governmental Organizations (NGOs) in the Rehabilitation and Reconstruction of Post-eruption Merapi 2010 in Yogyakarta, Indonesia
- The interviewer is a master student from the University of Groningen (The Netherlands) and Bandung Institute of Technology (ITB) (Indonesia). Two supervisors in charge are Melanie Bakema from the University of Groningen and Dr. Saut Aritua H. Sagala from Bandung Institute of Technology (ITB)
- The interviewer would like to gain information about the participant's experiences and involvement with regard to Rekompak Project in Yogyakarta
- This interview will be recorded to have accurate information of participant's views. Those who can access the tapes and/or the transcripts are only the interviewer and the two supervisors
- Everything said by participant during the interview will be treated confidentially
- The participant can choose to stay anonymous; it means her/his name will not appear on the transcript or in any further publication
- It is possible to add any supplementary information on the transcript which is obtained from correspondences between the participant and the interviewer via email or any other messages facilities.

##### Participant's Consent

As participant,

- I agree to be interviewed for the research entitled “**The Role of Non-Governmental Organizations (NGOs) in the Integration of Disaster Management and Sustainable Development**” which is being produced by Patri Ismayasti of the University of Groningen and Bandung Institute of Technology (ITB)
- I have been given satisfactory answers to my inquiries concerning project procedures and other matters; and that I have been advised that I am free to withdraw my consent and to discontinue participation in the project or activity at any time without prejudice
- I agree to participate in one or more electronically recorded interviews for this project, and one or more written correspondences via email or any other messages facilities. I understand that such interviews and related materials will be kept completely (not) anonymous, and that the results of this study will be published in interviewer's master thesis and other academic courses, and may be published in academic journals, and academic conferences
- I agree that any information obtained from this research may be used in any way thought best for this study. I would (not) like to have the copy of this interview/s transcript, and the copy of the draft final thesis, and please send it to: \_\_\_\_\_
- Hereby I grant the right to use information from recordings and or notes taken in interviews of me, to the University of Groningen and Bandung Institute of Technology (ITB). I understand that the interview records will be kept by the interviewer and the project, and that the information contained in the interviews may be used in materials to be made available to the general public.

Place and date: \_\_\_\_\_

Name of participant: \_\_\_\_\_ Signature of participant: \_\_\_\_\_

Name of interviewer: Patri Ismayasti----- Signature of interviewer: \_\_\_\_\_

*\*Any hesitation and questions can be addressed by contact the interviewer on phone number: +62811252433 or +31617899859, and email: ismayasti@yahoo.com or ismayasti@gmail.com*

## Appendix E

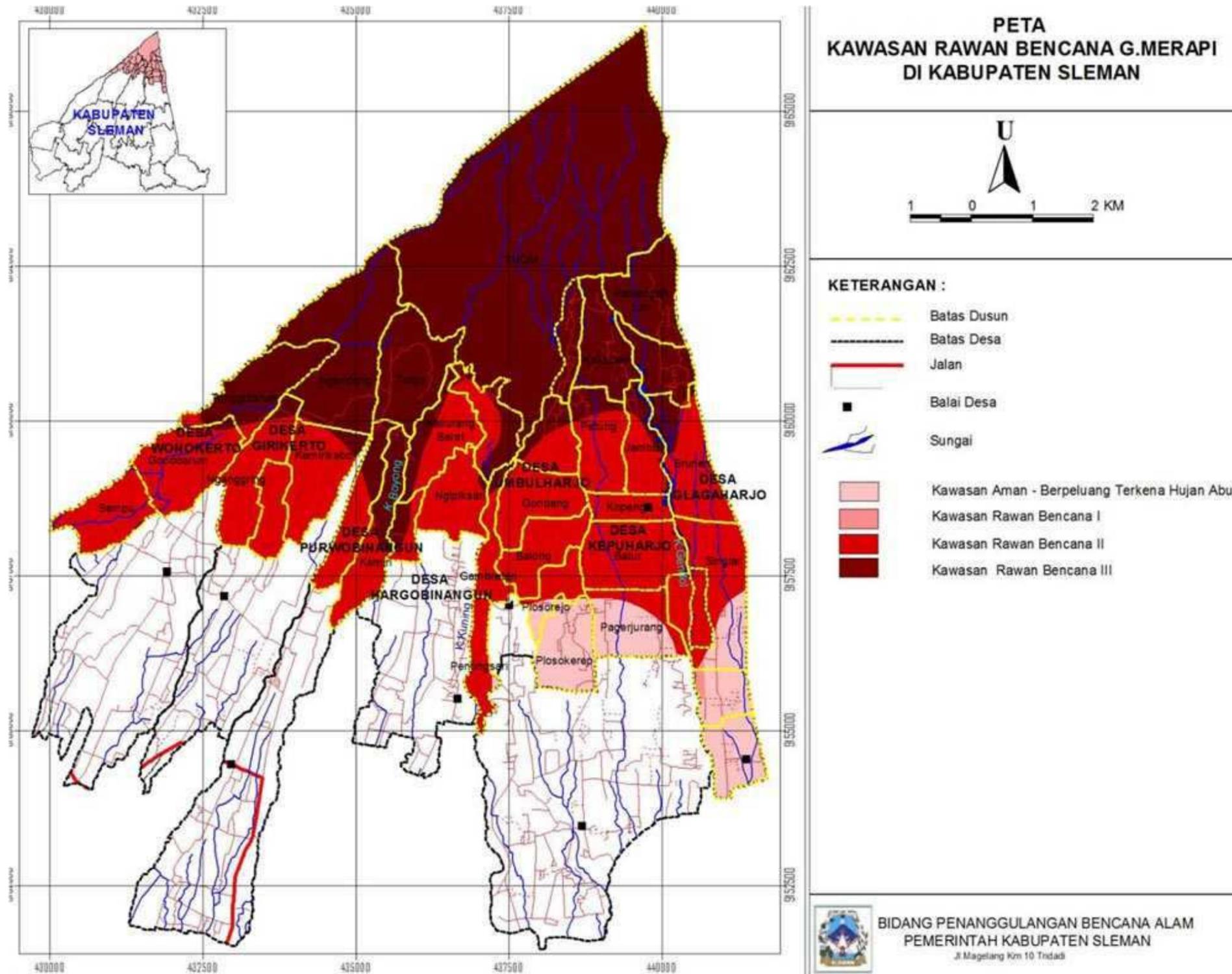
Table E. Categorizations of stakeholders in the disaster management of post-eruption Merapi 2010

Governmental Institutions	NGOs	Others
<p>National Governments:</p> <ul style="list-style-type: none"> <li>- National Development Planning Agencies (Bappenas)</li> <li>- Ministry of Public Works</li> <li>- Ministry of Finance</li> <li>- National Agency for Disaster Management</li> <li>- Coordinating Ministry of the People's Welfare</li> <li>- Ministry of Forestry</li> <li>- Ministry of State-owned Enterprises (Ministry of BUMN)</li> <li>- Ministry of National Education</li> <li>- Ministry of Energy and Mineral Resources</li> <li>- Ministry of Health</li> <li>- Ministry of Social Services</li> <li>- Ministry of Environment</li> <li>- Project Management Unit of Rekompak</li> </ul> <p>Regional Governments:</p> <ul style="list-style-type: none"> <li>- Government of Yogyakarta Province</li> <li>- Regional Development Planning Agency of Yogyakarta Province</li> <li>- Regional Agency for Disaster Management of Yogyakarta Province</li> <li>- Working Units of Government of Yogyakarta Province</li> <li>- Government of Sleman Regency</li> <li>- Regional Development Planning Agency of Sleman Regency</li> <li>- Regional Agency for Disaster Management of Sleman Regency</li> <li>- Working Units of Government of Yogyakarta Province</li> </ul>	<p>International NGOs:</p> <ul style="list-style-type: none"> <li>- The World Bank</li> <li>- The United Nations</li> <li>- Arbeiter-Samariter-Bund (ASB)</li> <li>- Caritas Germany</li> <li>- Danish Red Cross</li> <li>- Handicap International</li> <li>- IOM Yogyakarta</li> </ul> <p>Regional/Local NGOs:</p> <ul style="list-style-type: none"> <li>- MDMC (Muhammadiyah Disaster Management Center) of Sleman Regency</li> <li>- Gerakan Jogja Bangkit (GJB)</li> <li>- Kwartir Daerah Gerakan Pramuka DIY</li> <li>- Mahasiswa Kristen Peduli, Yogyakarta</li> <li>- Parisada Hindu Dharma Indonesia (PHDI)</li> <li>- Female Radio</li> <li>- Radio Anak Jogja</li> <li>- Lembaga Penelitian dan Pengabdian Masyarakat Univeritas Atma Jaya Yogyakarta</li> <li>- Lembaga Pengabdian Masyarakat Universitas Ahmad Dahlan Yogyakarta</li> <li>- Program Magister Pengelolaan Bencana Alam Jurusan Teknik Sipil dan Lingkungan Fakultas Teknik Sipil Universitas Gajah Mada Yogyakarta</li> <li>- Pusat Studi Manajemen Bencana Universitas Pembangunan Nasional Veteran Yogyakarta</li> <li>- Circle Indonesia</li> <li>- Combine Resource Institution</li> <li>- Institute for Development and Economic Analysis (IDEA)</li> <li>- Karitas Indonesia-Keuskupan Agung Semarang (KARINA-KAS)</li> <li>- Klub Indonesia Hijau</li> <li>- Komite Yogyakarta untuk Pemulihan Aceh (KYPA)</li> <li>- Palang Merah Indonesia DIY</li> <li>- Perhimpunan Solidaritas Buruh (PSB)</li> <li>- Perkumpulan Institut Hak Asasi Perempuan (IHAP)</li> <li>- Perkumpulan Keluarga Berencana Indonesia (PKBI) DIY</li> <li>- Perkumpulan Lingkar</li> <li>- Pos Keadilan Peduli Ummat (PKPU) Cabang DIY</li> <li>- Pusat Rehabilitasi Yakkum</li> <li>- Pusat Studi Masyarakat</li> <li>- Rumpun Tjoet Njak Dien</li> <li>- Sentra Advokasi Perempuan Difabel dan Anak (SAPDA)</li> <li>- Solidaritas Perempuan Kinasih</li> <li>- Yakkum Emergency Unit</li> <li>- Yayasan CIQAL</li> </ul>	<p>Communities/Residents/Villagers</p> <p>Individual donators</p> <p>Media</p> <p>Independent professional Universities' Team and or experts</p>

Governmental Institutions	NGOs	Others
	<ul style="list-style-type: none"> <li>- Yayasan Hijau GPL</li> <li>- Yayasan Kesatuan Pelayanan Kerjasama (Satunama)</li> <li>- Yayasan Kutilang Indonesia</li> <li>- Yayasan Lestari Indonesia</li> <li>- Yayasan Peningkatan dan Pengembangan Sumberdaya Ummat</li> <li>- Yayasan SHEEP Indonesia</li> <li>- Yayasan Tanggul Bencana Indonesia Yogyakarta</li> <li>- Yayasan Paluma</li> </ul>	

Source: Author (2014), FPRB (2014)

Figure F. Merapi Hazard Zone



Source: RTRW Kabupaten Sleman 2011-2031

## Appendix G

Table G. Categorization of predominant NGOs in the disaster management of eruption Merapi 2010

Name of NGOs	Scale of organizations	Organizational background related to disaster	Position/focus/activities for eruption Merapi	Contribution in the disaster management phase	Implication of the involvement
The WB (World Bank) Indonesia	International	The WB's focus on damage and loss assessment in the wake of natural disasters → in line with its overall mission to fight poverty and build resilient community. The WB's Disaster Risk Management team aims to reduce human suffering and economic losses caused by natural and technological disasters → by helping government agencies, to be more strategic and responsive to potential disasters by integrating disaster prevention and risk reduction efforts into the range of regular development activities	<p>WB as the Trustee Agency:</p> <ul style="list-style-type: none"> <li>- Delivering funds for the recovery phase: the built of public and social infrastructure, settlement and the facilities</li> <li>- Mentoring, delivering technical assistance for communities and capacity building for the government (recovery and development phase) → involved in the arrangement of RR Program, the PDNA (Post Disaster Needs Assessment), and the DaLa (Damage and Loss Assessment)</li> </ul> <p>The WB works with REKOMPAK to advocate with communities for better sanitation and waste management systems in the new relocation areas including building communal facilities upon request by the communities, and to build additional housing.</p>	<p>Emergency phase</p> <p>Early recovery phase</p> <p>Recovery phase</p> <p>Development phase</p>	<p>Through the IMDFFF-DR (Indonesia Multi Donor Fund Facility for Disaster Recovery) as a trust fund facility of the Gol, the Gol established formal relationship with the WB and UNDP in managing funds from 7 international donors → based on Memorandum of Understanding (MoU) agreement between the Indonesian government and the World Bank and United Nations (UN) on The Indonesia Multi Donor Fund for Disaster Recovery, dated December 30, 2009</p> <p>Funding through IMDFFF-DR as an alternative source of funds to fill the gap of disbursement of the government funds on the fiscal year 2011, and to improve the implementation of the funding program fiscal year 2011-2013.</p> <p>The IMDFF-DR is intended to complement government-funded recovery activities, and bring strategic value in developing capacity and promoting sustainability.</p> <p>The WB and UNDP cooperate with the government and many other NGOs in the implementation of the program.</p>
UN (United Nations) with the agencies: FAO (Food and Agriculture Organization), IOM (International Organization of Migration) Yogyakarta, ILO (International Labor Organization)	International	UNDP Indonesia responds quickly and effectively in disaster event: established team of first responders, experts in their fields, who know the drill → provides immediate early recovery support to the government when called up in conflict or disaster situations	<p>UNDP (United Nations Development Program) as Administrative Agency, focus on:</p> <ul style="list-style-type: none"> <li>- Early recovery/transition phase: initiating the rehabilitation and reconstruction e.g. support in arranging the coordination, studies, and planning</li> <li>- Programs related to the development of the basic human needs and social services</li> <li>- Programs on the community and social development</li> </ul>	<p>Emergency phase</p> <p>Early recovery phase</p> <p>Recovery phase</p>	<p>The IMDFF-DR is intended to complement government-funded recovery activities, and bring strategic value in developing capacity and promoting sustainability.</p> <p>The WB and UNDP cooperate with the government and many other NGOs in the implementation of the program.</p>

Name of NGOs	Scale of organizations	Organizational background related to disaster	Position/focus/activities for eruption Merapi	Contribution in the disaster management phase	Implication of the involvement
			<p>Work for Merapi livelihood recovery program:</p> <ul style="list-style-type: none"> <li>- to restored, improved and diversified agricultural livelihoods and revived economic activity in targeted communities, incorporating the value chain approach in the selection of culturally significant local products for development</li> <li>- strengthened capacity of local government to manage and coordinate Disaster Risk Reduction (DRR) based recovery programs through the design of information systems, disaster preparedness strategies and coordination structures.</li> </ul>		
ASB (Arbeiter-Samariter-Bund)	International	<p>ASB's approach was to build on existing relations and programming with local government and to support the local government response to at-risk groups</p> <p>ASB also decided early on that while there were some key gaps within the relief being provided any non-food items (NFI) to be distributed would need to be portable in order to account for the rapid movement of internally displaced persons (IDPs) and the possibility of early return during the project</p>	<p>Actions:</p> <ul style="list-style-type: none"> <li>- Distributed family packs of hygiene and basic shelter items along with personal protective equipment in single back-packs</li> <li>- Supporting outreach materials were also included. This portable solution ensured that the packs could be used at all potential points of the IDP movement cycle</li> <li>- Supported longer-term DRR programming in the area in which households have been encouraged to equip themselves with emergency bags for use in the event of evacuation due to earthquakes or volcanic eruptions</li> <li>- Worked on outreach and information</li> </ul>	Early recovery phase Recovery phase	Direct humanitarian assistance to the affected community, given mostly in the emergency and early recovery phase, build coordination with local governments.

Name of NGOs	Scale of organizations	Organizational background related to disaster	Position/focus/activities for eruption Merapi	Contribution in the disaster management phase	Implication of the involvement
			based programming with existing structures such as previously established DRR focal point teachers and government health workers as well as directly with affected communities		
ACT (Aksi Cepat Tanggap)	National	Promoting <i>Integrated Recovery Program for disaster</i>	<p>Actions:</p> <ul style="list-style-type: none"> <li>- Emergency action by spreading banners with motivation message for disaster victims</li> <li>- Huntara (temporary shelter) program</li> </ul>	<p>Emergency phase</p> <p>Early recovery phase</p>	Direct humanitarian assistance to the affected community, given mostly in the emergency and early recovery phase, less coordination with local governments.
MDMC (Muhammadiyah Disaster Management Center)	National	Muhammadiyah is responsible for coordinating resources in disaster management activities. MDMC engaged in the disaster management activities in accordance with the activity of Mitigation and Preparedness, Emergency Response and Rehabilitation. MDMC adopt voluntary codes of conduct and humanitarian charter applicable international humanitarian, develop disaster risk reduction mission aligned with Hygo Framework for Action and the base to develop preparedness at the community level, schools and hospitals.	<p>Actions:</p> <ul style="list-style-type: none"> <li>- Muhammadiyah delivered aids not only from its member, but also from common independent organizations or individual person</li> <li>- established schools of disaster preparedness and sub-village of disaster preparedness</li> <li>- held disaster simulation event, attended by many stakeholders, from governments-national, provincial, regency-, private organizations, NGOs, villagers, students, volunteers, etc</li> <li>- prepared workshop for the sub-villages and schools of disaster preparedness</li> <li>- assisted villagers for livelihood (economic) empowerment</li> <li>- did not make decision for the rehabilitation and reconstruction stage, but delivered the voices to the government</li> </ul>	<p>Emergency phase</p> <p>Early recovery phase</p> <p>Recovery phase</p> <p>Development phase</p>	<p>Direct humanitarian assistance to the affected community, given mostly in the emergency and early recovery phase.</p> <p>Support government programs and policy, support coordination networks, filling the gap of activities, delivering voices from affected people, approaching the local leaders of communities and governments to make communication networks, join the FPRB.</p> <p>Cooperate with the government and many other NGOs in the implementation of the program.</p>
Handicap International Yogyakarta	National	Handicap International (HI) is a non-profit organization which works for 'disabilities'.	<p>Actions:</p> <ul style="list-style-type: none"> <li>- The Inclusive Emergency Response Merapi 2010 Project is a project</li> </ul>	<p>Emergency phase</p> <p>Early recovery phase</p> <p>Recovery phase</p>	Direct humanitarian assistance to the affected community, given mostly in the phase of recovery disaster management,

Name of NGOs	Scale of organizations	Organizational background related to disaster	Position/focus/activities for eruption Merapi	Contribution in the disaster management phase	Implication of the involvement
			<p>established based on the Emergency Framework by the HI Indonesia-TL. The aim of the project is to ensuring the implementation of emergency response for the vulnerable people (elderly, toddlers, expectants, and people with disabilities)</p> <ul style="list-style-type: none"> <li>- Monitoring and evaluation of disaster management programs in order to accommodate the needs of disabled people.</li> </ul>		<p>build coordination with local governments. Support government programs and policy, support coordination networks, join the FPRB.</p> <p>Cooperate with the government and many other NGOs in the implementation of the program.</p>
Combine Research Institute	National	<p>Working for community development program with approach of information and knowledge management</p> <p>Team Information Communication for Emergency Situations (TIKUS DARAT) was formed to assist the communication of information management in humanitarian settings → equipped with a set of communication tools that are designed to function quickly and integrated.</p> <p>Support networks of information and communication systems in the pre-disaster, emergency relief and rehabilitation to bridge the coordination of information flow and communication between stakeholders at the provincial, between district and community.</p>	<p>Actions:</p> <ul style="list-style-type: none"> <li>- Increase the capacity of disaster management by strengthening multi-method training</li> <li>- Strengthen the wealth ethno-methodology-type disaster</li> <li>- Strengthen the use of multi-module (SMS, Web, database, offline, etc.)</li> <li>- Develop information and communication infrastructure in emergency situations</li> <li>- Build a network with various stakeholders related to disaster management as BNPB, the government of the district to the provincial level, and others</li> <li>- Build SID (Village Information System) database in order to manage the village to support risk analysis and policy in developing RAD Pemdes</li> <li>- Assistance during emergency use of SID.</li> </ul>	<p>Emergency phase Early recovery phase Recovery phase Development phase</p>	<p>Direct assistance to the community, continuous assistance in all phases of disaster management, build coordination with local governments, support government programs and policy, support coordination networks, join the FPRB.</p> <p>Development program with approach of information and knowledge management deliver knowledge to communities to be able to handle the disaster situation.</p> <p>Cooperate with the government and many other NGOs in the implementation of the program.</p>
PMI (Indonesian)	National	Social and health service	Actions:	Emergency phase	Direct humanitarian assistance to the

Name of NGOs	Scale of organizations	Organizational background related to disaster	Position/focus/activities for eruption Merapi	Contribution in the disaster management phase	Implication of the involvement
Redcross) DIY			<ul style="list-style-type: none"> <li>- Conduct needs assessment in the displaced camp</li> <li>- set up the field kitchen to provide meals for the internally displaced people</li> <li>- delivering health services and conducting psychosocial activities for children</li> <li>- the water and sanitation team has started to produce clean water.</li> </ul>	<p>Early recovery phase Recovery phase Development phase</p>	<p>affected community, given mostly in the emergency and early recovery phase, build coordination with local governments, support government programs and policy, support coordination networks. Cooperate with the government and many other NGOs in the implementation of the program.</p>
SAR (Search and Rescue) Indonesia	National	Implement coaching, coordinating and controlling the potential of Search and Rescue (SAR) SAR activities of persons and materials lost or feared lost, or facing danger, provide SAR assistance in disaster relief and other disaster SAR in accordance with national and international regulations.	<p>Actions:</p> <ul style="list-style-type: none"> <li>- Establishment of disaster post</li> <li>- Helping evacuation process</li> <li>- Find the victims</li> <li>- Emergency rescue action</li> </ul>	<p>Emergency phase Early recovery phase Recovery phase Development phase</p>	
Tagana ( <i>Taruna Siaga Bencana</i> )	National	The driving potential of community-based disaster management, especially in the rural area	<p>Actions:</p> <ul style="list-style-type: none"> <li>- Establishment of disaster post</li> <li>- Helping evacuation process</li> <li>- delivering aids and logistic directly to the people</li> </ul>	<p>Emergency phase Early recovery phase</p>	
TV One	National	Distributing donations	<p>Actions:</p> <ul style="list-style-type: none"> <li>- Build houses</li> <li>- Distributing funds for economic recovery programs</li> </ul>	<p>Emergency phase Early recovery phase</p>	<p>Direct humanitarian assistance to the affected community, given mostly in the emergency, early recovery, and recovery phases, build coordination with local governments, support government programs and policy. Cooperate with the government and many other NGOs in the implementation of the program.</p>
Dompot Dhuafa	National	Distributing donations	<p>Actions:</p> <ul style="list-style-type: none"> <li>- Build houses</li> <li>- Distributing funds for economic recovery programs</li> </ul>	<p>Emergency phase Early recovery phase</p>	<p>Direct humanitarian assistance to the affected community, continued in all phases of disaster management, build</p>
Gadjah Mada University	National	Research team for overcoming the eruption of Merapi, in charge of preparing the proposed disaster	<p>Actions:</p> <ul style="list-style-type: none"> <li>- Proposal of the hazard zones area</li> <li>- The proposed plan and the strategic plan</li> </ul>	<p>Emergency phase Early recovery phase Recovery phase</p>	<p>Direct humanitarian assistance to the affected community, continued in all phases of disaster management, build</p>

Name of NGOs	Scale of organizations	Organizational background related to disaster	Position/focus/activities for eruption Merapi	Contribution in the disaster management phase	Implication of the involvement
		management planning and assistance of the government's program.	for disaster management programs - Preparation of plans for rehabilitation and reconstruction of housing and settlements	Development phase	coordination with local governments, support government programs and policy, support coordination networks, join the FPRB. Cooperate with the government and many other NGOs in the implementation of the program.
Shorea (Small Home of Rural Empowerment Activists)	National	NGO that works for equitable management of natural resources and sustainable development, strengthening and developing the use of the forests.  Acceleration of ecosystem restoration at affected villages post Merapi Eruption was done with agro-forestry approach to combine livelihood needs and conservation purposes.	Actions: - built agro-forestry demonstration plots of 15,8 hectares in 2 villages of Kepuh Harjo and Umbulharjo - to give example or lesson and knowledge on the forestry development and ecosystem restoration.	Emergency phase Early recovery phase	Direct humanitarian assistance to the affected community, given mostly in the recovery phase disaster management, build coordination with local governments, support government programs and policy, support coordination networks. Cooperate with the government and many other NGOs in the implementation of the program.
Institute for Development and Economic Analysis (IDEA)	National	Promote public policies that respect economic, social, and cultural rights through development planning and budget advocacy. IDEA gives a voice to these communities by empowering them to secure their rights through educational programs and advocacy training on national, regional, and local government budget policy.	IDEA promotes economic and social rights based budget advocacy organization that covers the issues of disaster risk reduction mainstreaming in planning and budgeting.  In collaboration program promotes cooperation with other NGOs in the Program of "Risk Analysis, Hazard Assessment, Information Based on Early Warning System and Communities Awareness of Merapi".	Recovery phase	Interaction with governments and communities in the ongoing evaluation and monitoring of disaster management programs. Communicate the results of budgeting evaluation to the public in a transparent way. Build coordination with local governments, support government programs and policy, support coordination networks. Cooperate with the government and many other NGOs in the implementation of the program.
Pusat Rehabilitasi Yakkum	National	YAKKUM Rehabilitation center is a non-government institution, Christian social organization which	Actions: - Evacuation of disabled people from the disaster site, the provision of transport	Emergency phase Early recovery phase	Direct humanitarian assistance to the affected community, given mostly in the phase emergency and recovery disaster

Name of NGOs	Scale of organizations	Organizational background related to disaster	Position/focus/activities for eruption Merapi	Contribution in the disaster management phase	Implication of the involvement
		is part of YAKKUM ( <i>Yayasan Kristen Untuk Kesehatan Umum</i> ). PRY gives services for people with disabilities	facilities and reasonable accommodation in the relocation locations - Evacuation and assistance during the transition period, the provision of logistics facilities, distribution of aid s - Social assistance and economic recovery activities for the disabled.		management, build coordination with local governments, support government programs and policy, support coordination networks, join the FPRB. Cooperate with the government and many other NGOs in the implementation of the program.

Source: Author (2014)

