

**The Coordination between The Indonesian Armed
Forces and Local Government in Natural Disaster
Management : A Case Study of The Incident of
Mount Agung Eruption**

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Certificate of Research Paper

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ABSTRACT

Title : The coordination between the Indonesian Armed Forces and local government in natural disaster management : A case study of the incident of mount Agung eruption

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Indonesia located on the meeting point of several tectonic plates, located between two continental plates (the Eurasian Plate and Australian Plate) and two oceanic plates (the Indian Plate and Pacific Plate). These plates move in relation to one another and frequently make collisions. This condition makes Indonesia very vulnerable to natural disasters, especially volcanic eruptions and earthquakes

Indonesian Government agencies that play a role in managing natural disasters at the central level are Indonesian National Board Disaster Management (Badan Nasional Penanggulangan Bencana) and assisted by other institutions including the Indonesian National Armed Forces.

In Bali Island, there is an active volcano, Mount Agung. In 2017 Mount Agung has eruption. At the time, the Author served in the Province of Bali as Commander of Military Resort 163 and took part in assisting and cooperating with local governments and related elements in implementing disaster relief management. This experience shows that there are weaknesses in coordination between the military and the local government. This research can be used as a lesson learn to find out what

steps need to be taken in the future in dealing with natural disasters that are likely to occur again in this region.

The Author doing this research because of these four reasons. First is to gain knowledge about the effectiveness of natural disaster management that has been done so far. The second one is to Learning and understanding how the coordination that has been implemented between the Indonesian Armed Force with the local government in natural disaster management. The third is to identify factors that can obstruct the coordination between the Indonesian National Armed Forces and the local government, find a solution, and can give useful suggestions. And the last is expected to be beneficial for other countries that may have potential natural disasters especially in Southeast Asia and may be adapted according to the situation and conditions faced by the country.

The objectives of this research are to examine how local government carried out coordination with the Indonesia Armed Forces during the implementation of disaster management of Mount Agung eruption in Bali Province. The second one is to study what laws affect the implementation of disaster management tasks related to coordination between local government and the Indonesian Armed Forces. And the third is to provide an approach or recommendation on how to establish good coordination between the military and the local government in managing natural disasters.

To achieve the objectives, this research uses qualitative research methods and the analysis is descriptive. The author uses several theories to analyze the data and facts obtained, namely The nature of military assistance in disaster by W. Nick Carter in A Disaster Management Handbook. The Second is the Civil-Military cooperation theory by

Samuel P. Huntington. The third theory is Role theory by BJ. Bildlle. And the last theory is Concepts Military Operation Other than War by US Joint Staff Doctrine.

This research consist of five chapters, the first chapter is about the introduction. The second is about the literature review. the third chapter is the data and facts about the coordination problem. The fourth is analyst related data and fact. And the last chapter is summaries some conclusions.

With the research conducted, several results and recommendations were obtained. First, it is necessary to make a law that explains the role of the Indonesian armed forces in natural disaster management. Second is to need another law to execute the task of disaster management. The third is to need good coordination in the procurement of communication devices to get communication interoperability. Four is between government and all related parties need joint training in disaster management. The last is need regulation at the level of the regional government to state clearly the role of Indonesian armed forces during emergency response.

Preface

Coordination in the context of natural disaster management between Indonesian Armed Forces and local governments has often been necessary and important, this is because Indonesia has high potential for natural disasters. The coordination is carried out to improve the effectiveness of disaster management to cut the number of casualties or greater losses. The activity certainly refers to law No. 34 / 2004 on Indonesian Armed Forces and Law No. 24 / 2007 on disaster management as a foundation for the military and civilian government to carry out their main duties.

In 2017 there was a volcanic eruption in the Province of Bali which caused casualties, losses, and has disrupted tourism in the area, Indonesian Armed Forces carried out the task of assistance to local governments in disaster management, especially for emergency response, so that the two institution made a coordination during that situation. Although generally the task has been done, but the coordination between Indonesian Armed Forces and local government needs further study to find out more understanding about it.

The author is interested in conducting research to study how the coordination is carried out, and the level of the effectiveness of its implementation and to understand the factors that obstruct coordination in disaster management. When the Mount Agung in Bali Province erupted in 2017 the writer served in one of the territorial military units and was directly involved in the process.

It is hoped that this study will offer an understanding of the coordination difficulties between Indonesian Armed Forces and local government, so that they can find solutions and give suggestions for the implementation of similar tasks in the future.

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Chapter 1

Introduction

Background and Significant of the Problem

Indonesia located between two continents and two oceans and surrounded by the most active earthquake path in the world. There is a meeting point of several tectonic plates, located between two continental plates (the Eurasian Plate and Australian Plate) and two oceanic plates (the Indian Plate and Pacific Plate). These plates move in relation to one another and frequently make collisions. Earthquakes, volcanic activity, mountain-building, and oceanic trench formation occur along these plate boundaries. The lateral relative movement of the plates varies, though it is typically 0–100 mm annually. Earthquake epicentre on sea can trigger tidal wave called tsunami. Moreover, Indonesia also has a line of volcanoes that are part of the Pacific Ring of Fire. This ring is an area where large numbers of earthquakes and volcanic eruptions occur in the basin of the Pacific Ocean. Indonesia has about 150 volcanoes across its archipelago. These volcanoes are among the most active of the Pacific Ring of Fire. Some of the volcanoes are notable for their eruptions, for instance, Krakatoa for its global effects in 1883, Lake Toba for its supervolcanic eruption estimated to have occurred 74,000 years before present which was responsible for six years of volcanic winter, and Mount Tambora for the most violent eruption in recorded history in 1815. The most active volcanoes are Kelud and Merapi on Java island which has been responsible

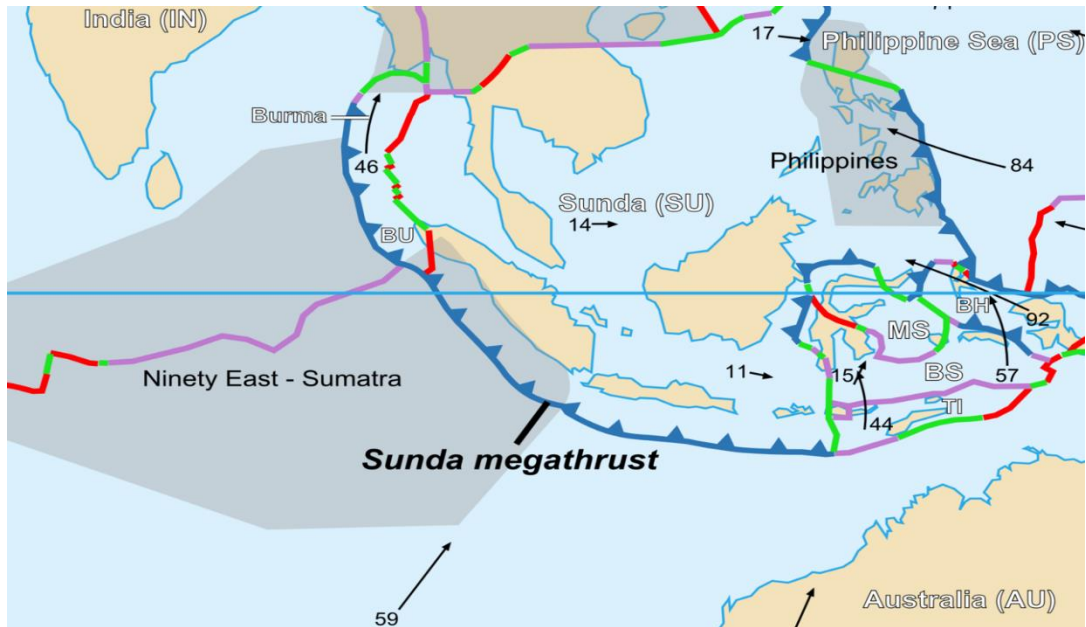
for thousands of deaths in the region.¹ That is why Indonesia has always experienced natural disasters such as volcanic eruption, earthquake, tsunami among others. According to the data from official sources of Indonesia National Board for Disaster Management in last ten years (2010 – 2020), earthquake with tsunami become natural disaster that cause the most fatalities, there were 3.475 people died, 68,451 building and houses heavily damaged, 22 health facilities, 375 worship facilities and 265 education facilities were damage.²

Therefore, the Indonesian government with all its national resources must always be ready to face natural disasters that can occur at any time to reduce the number of personnel and dead losses.

¹ http://en.wikipedia.org/wiki/List_of_volcanoes_in_Indonesia.
Access on 12 Oct 2019.

² <http://dibi.bnpb.go.id>. Accessed on 20 January 2019.

Figure 1-1 : The tectonic plates & movements under Indonesia



Source: Wikipedia The Free Encyclopedia Geography of Indonesia. https://en.wikipedia.org/wiki/Geography_of_Indonesia. Accessed on 11 March 2020

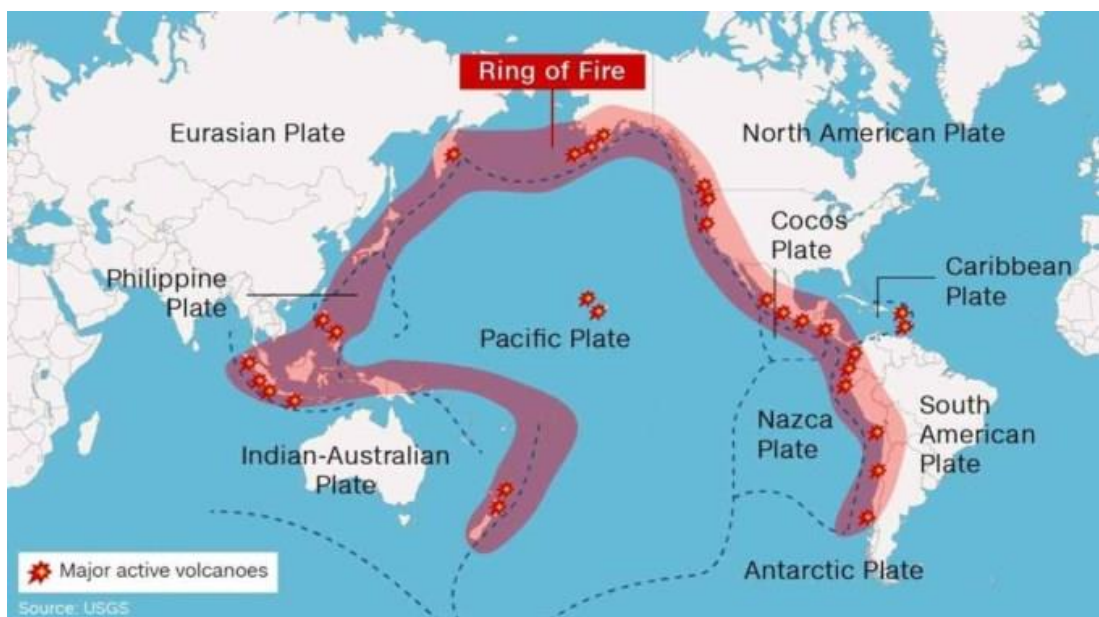
Government agencies that play a role in managing natural disasters at the central level are Indonesia National Board Disaster Management (Badan Nasional Penanggulangan Bencana)³ and at the local level is the Local Disaster Management Agency⁴ assisted by other institutions including the Indonesian National Armed Forces. The role of the Local Government (Pemerintahan Daerah) by establishing Indonesia National Board Disaster Management as the provincial/district/city local

³ Presidential Decree Number:8/2008 about Indonesia National Board Disaster Management (Badan Nasional Penanggulangan Bencana).

⁴ Ministry of Internal Affairs Regulation Number 46/2008 on Indonesia National Board Disaster Management (Badan Nasional Penanggulangan Bencana).

apparatus tasked and functioning for the implementation of disaster management becomes an important measure for determining success in disaster risk reduction. This is also inseparable from the role of the Indonesian National Armed Forces (TNI) in helping the Local Government cope with the consequences of natural disasters, refugees and the provision of humanitarian assistance as stipulated in Indonesian Republic Law Number 34/2004 on Indonesian National Armed Forces in Chapter IV Article 7 regarding the tasks of Indonesian Armed Forces in Military Operations Other than War. Since natural disasters in a certain area needs to be overcome quickly, precisely, and well-coordinated to reduce the number of victims and losses especially during emergency response. That is why there needs to be good coordination among Indonesia National Board Disaster Management, local government, and the Indonesian National Armed Forces.

Figure 1-2 : Ring of Fire



Source : Ring of Fire by USSG. <http://www.geologyon.com/2018/01/the-ring-of-fire.html>

The existence of the cooperation between the Indonesian National Armed Forces and the local government in managing on dealing with emergencies must be strengthened so that efforts to overcome natural disasters have increased. The speed with which the TNI responds and moves in tackling natural disasters must also be balanced by the speed of the response of the local government and its instruments.

In order to make sure that natural disaster management can be planned, implemented and well coordinated that is able to give protection to the whole community against people and material losses. So good coordination between the military and local government must be done. Coordination begins before the natural disaster occurs such as the formation of a joint coordination center, training and budget. When natural disasters occur, how to decide who is suitable to lead the emergency response (Incident Commander) and what kind of organization is used. At the time after the emergency response period how cooperation was carried out included organizations, leaders and budgets.

Bali island is the most well known island in Indonesia, because Bali is a leading tourist destination in Indonesia and the main destination for every foreign tourist who goes on holiday to Indonesia. But behind the natural beauty and culture. Bali has its own natural disaster. That Is Mount Agung the highest mountain on the island of Bali with an altitude of 3031 meters above sea level. This mountain is located in Rendang sub-district, Karangasem Regency, east part of Bali island. Mount Agung is an active volcano that has erupted several times and the latest is in 2019.

Mount Agung first erupted in 1808. At that time, Mount Agung issued a lot of ash and stones out. The next eruption occurred 13 years later, in 1821. The second eruption was categorized as normal and the

range of the eruption was not as extensive as in 1808. After that eruption, Mount Agung's activity increased again preceded by a number of earthquakes and spewed out volcanic ash, sand and rocks. The eruption occurred again in 1963. The impact of this eruption was extraordinary. Previously, an earthquake was heard from the area around Mount Agung. The tragedy began on February 20, 1963 when Mount Agung let out thick smoke. On March 17, 1963, the height of the eruption cloud reached its climax. Ash and gravel rain began to fall from the crater towards the surrounding residents. This activity only stopped for months later, precisely in January 1964. The impact of this activity was around 1,148 people died and 296 people were injured. In 2017, Gunung Agung's activity was active again, with an increase in seismic and rumbling. Normal status are raised alert. Residents around Mount Agung also began to be evacuated. The peak, on September 22, 2017, the status of Mount Agung was raised from standby to watch out. The intensity of the volcanic earthquake occurred hundreds of times until October 2017.⁵

At the time of the eruption of Mount Gung in 2017 the author served in the Province of Bali as Commander of Military Resort 163 and took part in assisting and cooperating with local governments and related elements in implementing disasters relief management. This experience

⁵ Aswab Nanda Pratama. "Sejarah G. Agung Meletus Pertama Kali Tahun 1808, Paling Dahsyat pada 1963". (online). Available: <https://www.batam.tribunnews.com/2019/01/10/sejarah-gunung-agung-meletus-pertama-kali-tahun-1808-paling-dahsyat-pada-1963>, Januari 2019.

shows that there is weaknesses in coordination between the military and the local government, especially the agencies responsible for carrying out their duties during natural disasters. In addition, coordination before the disaster appears to have not been carry out properly according to training and standing operation procedures. This issue can be used as a lesson learn to find out what steps need to be taken in the future in dealing with natural disasters that are likely to occur again in this region.

Objectives of the Research

In Law Number 34/2004 on Indonesian National Armed Forces ,the main task of the TNI is to uphold national sovereignty, maintain the territorial integrity of the Unitary State of the Republic of Indonesia based on the Pancasila and the 1945 Constitution of the Republic of Indonesia, and protect the entire nation and the entire spill Indonesian blood from threats and disturbances to the integrity of the nation and state. The main task is carried out with military operations war (Operasi Militer Perang/OMP) and military operations other than war (Operasi Militer Selain Perang/OMSP). At one points is to help cope with the consequences of natural disasters, displacement, and the provision of humanitarian assistance. This legal basis forms the basis of the TNI in carrying out its natural disaster management tasks.

In carrying out natural disaster management tasks the TNI posture is very reliable. The basic capabilities of soldiers, facilities and infrastructure as well as the spread of existing unit positions throughout Indonesia provide the ability to deal quickly with unexpected natural disasters. The superiority of the TNI is not shared by other government

agencies in Indonesia. So that in practice, the TNI has always been the first and foremost government agency in dealing with natural disasters.

In contrast, Law Number 24/2007 on Natural Disaster Management does not discuss at all the role of the TNI. There isn't even a single word of the TNI written in this Law. Likewise, Presidential regulation related to natural disasters such as Presidential regulation number 1 / 2009 on National Board of Disaster Management (Badan Nasional Penanggulangan Bencana / BNPB), Presidential regulation number 17 / 2018 on Implementation of Disaster Management in Certain Conditions, and several government regulations related to natural disasters have not explained in detail the role of the TNI. So the problem to be discussed in this research is "How is the coordination between the Indonesian Armed Forces and the Local Government in natural disaster undertaken?"

Based on exiting problem, the aim of this research are as follows:

1. To examine how local government carried out coordination with the Indonesia Armed Forces during implemtation disaster management of Mount Agung eruption in Bali Province.
2. To study what laws affect the implementation of disaster management tasks related to coordination between local govenment and the Indonesian Armed Forces.
3. To provide an approach or recommendation on how to establish a good coordination between the military and the local government in managing natural disasters.

Scope of the Research

The scope of this research is limited to covering collaboration between the Indonesian National Armed Forces and local governments while managing natural disaster relief in the incident of Mount Agung eruption in Bali island which includes coordination, control, organization, management, and budgeting in 2017. The area of study is through Bali Province which are consist of some institutions both military and local government involved on that action. Time is limited during managing the incident in that Province in 2017. This research consists of five chapters with the arrangement as explained below:

1. The first chapter provides the introduction of the research, which covers the background of how coordination between Indonesian Armed Forces and local government was executed during mount Agung eruption, the statement of the problem, objectives and scope of the research, methodology, and limitation.

2. The second chapter provides literatures review relating to highlight survey books, article, concepts, conceptual framework and other sources on military and local government cooperation during carrying out natural disaster management in mount Agung eruption.

3. The third chapter explore and elaborate many thing about coordination problem between Indonesian Armed forces and local government that occurred during carrying out natural disaster management.

4. The fourth chapter focuses in analyses many thing on coordination problem that are explained in the chapter before. through the theoretical and conceptual approaches described in the previous chapter

to get the best things that can be done to improve coordination. This will also explain the opportunities and challenges factors that exist in the context of improving coordination between Armed Forces and local government during carrying out disaster management.

5. The last chapter summaries some conclusions on the effects of less coordination between Armed Fores and local government in developing best result in disaster management and promoting the way ahead to strengthen coordination that might be adopted as the best method for implementing natural disaster management in accordance with the situations and conditions faced.

Methodology

This research uses qualitative research methodology as explained by W. Lawrence Neuman :..... "In a qualitative study, data sometimes come in the form of numbers; more often, the data are written or spoken words, actions, sounds, symbols, physical objects, or visual images (e.g., maps, photographs,videos). Unlike a quantitative study,a qualitative study does not convert all observations into a single, common medium such as numbers but leaves the data in a variety of nonstandard shapes,sizes,and forms. While numerical data convert information into a standard and condensed format, qualitative data are voluminous, diverse, and nonstandard".⁶

⁶ W. Lawrence Neuman. "Social Reserach Methods : Qualitative and Quantitative Approaches. USA: Pearson education limited, 2014. Page 201.

The research method is qualitative research methods and the analysis is descriptive. Data will be collected based on two sources namely primary and secondary sources. It is not based on direct field research but relies on various available sources that are related to the topic.

Primary data is a source of data obtained directly from the original source (not through intermediary media). Primary data can be opinions, subjects (people) individually or in groups obtained through questionnaires to people involved in handling incidents. Besides this research is also associated with the direct involvement of the author in dealing with the eruption of Mount Agung in the province of Bali.

Secondary data is a source of research data obtained indirectly through intermediary media (obtained and recorded by other parties). Secondary data is generally in the form of evidence, historical records or reports that have been compiled in archives (documentary data) that are published and not published, can be in the form of magazines, newspapers, electronic news or reports made by government institutions.

Limitation

Although the making process of this research paper is done with a good preparation, all the limitations that exist cannot be avoided. First as students who have limited access, especially because their time and opportunities are very limited. So that in the context of completing this research paper the authors advocate primary data sources from officers in the Headquarters staff, officers serving in the Province of Bali as well as several civil administration officials in the Province of Bali that are related to the management of disaster management in the area, while

the sources the secondary data the author uses news sources such as newspapers, magazines, work unit reports and limited documents.

In addition, the limited source of written documents covering or discussing the catastrophe of the eruption of Mount Agung in 2007 was due to all interested parties concentrating on managing the disaster to cut the number of victims and the suffering of the community.

Benefit of The Research

Considering that natural disasters are a real threat to countries which are in areas with high potential natural disasters, it is the main task of the State to protect its people and material losses, especially Indonesian which has a lot of threats of natural disasters, then the benefits that can be obtained from this research include:

1. Gaining knowledge about the effectiveness of natural disaster management that has been done so far.
2. Learning and understanding how the coordination that has been implemented between Indonesian National Armed Forces with the local government in natural disaster management.
3. Identifying factors that can obstruct the coordination between the Indonesian National Armed Forces and the local government, find a solution and can give a useful suggestions.
4. This Research is expected to be beneficial for other countries that may have potential natural disasters especially in Southeast Asia and maybe adapted according to the situation and conditions faced by the country.

Definitions

In order to get a uniform understanding of the terms used in this paper, it is hoped that the reader will have a common perception with the author, so some definitions are compiled which are partly quoted from various sources.

Disaster means An event, natural or man-made, sudden or progressive, which impacts with such severity that the affected community has to respond by taking exceptional measures.⁷

Natural Disaster means Natural disasters are disasters caused by events or a series of events caused by nature such as earthquakes, tsunamis, volcanic eruptions, floods, droughts, hurricanes, and landslides.⁸

Central Government means The Central Government, hereinafter referred to as the Government, is the President of the Republic of Indonesia who holds the power of government of the Unitary Republic of Indonesia as referred to in the 1945 Constitution of the Republic of Indonesia.⁹

⁷ W. Nick Carter, *Disaster management: A Disaster Manager's Handbook*. Mandaluyong City : Asian Development Bank, 2008.

⁸ Undang-Undang Nomor. 24 Tahun 2007 tentang Penanggulangan Bencana. Setneg, 2007

⁹ Ibid.

Local Government means Local government is the governor, regent /mayor, or local apparatus as the organizer of the local government.¹⁰

Disaster Management means In relation to the definition of disaster, it has also been taken into account that disaster management is essentially a dynamic process. It encompasses the classical management functions of planning, organizing, staffing, leading, and controlling. It also involves many organizations which must work together to prevent, mitigate, prepare for, respond to, and recover from the effects of disaster. Disaster management is defined as: An applied science which seeks, by the systematic observation and analysis of disasters, to improve measures relating to prevention, mitigation, preparedness, emergency response and recovery.¹¹

Mitigation means Activities that reduce the likelihood of a disaster occurring or reducing the amount of damage of an unavoidable disaster. Activities such as resource allocation, defense investment, risk management and

¹⁰ Ibid.

¹¹ W. Nick Carter, Disaster management: A Disaster Manager's Handbook. Mandaluyong City : Asian Development Bank, 2008.

climate forecasting would be considered mitigation activities.¹²

- Preparedness means Activities that increase the likelihood of successful disaster response. Development and investment in insurance and stockpiling resources and protecting other resources are activities that prepare for the disasters.¹³
- Response means Activities that occur immediately following the disaster that work to minimize the damage caused. Search and rescue missions, evacuations, and medical assistance are events that would be classified as response activities.¹⁴
- Recovery means Activities that help the community impacted by the disaster to return to normal conditions. Recovery phase activities would include actions such as the development of temporary housing, offers of financial aid, clearing of debris, and rebuilding efforts.¹⁵

¹² Daniel Seaberg, Laura Devine, Jun Zhuang. " A review of game theory applications in natural disaster management research". *Nat Hazards* (2017) 89:1461–1483. 6 September 2017. p.1463.

¹³ Daniel Seaberg, Laura Devine, Jun Zhuang. " A review of game theory applications in natural disaster management research". *Nat Hazards* (2017) 89:1461–1483. 6 September 2017. p.1464.

¹⁴ *Ibid.*

¹⁵ *Ibid.*

Chapter 2

Theories and Concepts of Natural Disaster Management

Various theories and concepts are available that can be used as an approach in analyzing natural disaster management problems, however, wise consideration in choosing and determining which theories and concepts are most appropriate to be used as a tool for analysis will provide good analysis, so that it will be easy to learn the problem faced in the end will be carried out. As the objective of the research are understanding how local government carried out coordination with the Indonesian Armed Forces, knowing what the obstruction and provide recommendation on how to establish good coordination. The review is composed of law, communication measure, capability preparedness, social economy vulnerability, organization, Command and Control.

Base on the thoughts as mention above, to discuss this research paper, there are four approach theories and concepts, the first is the nature of Military Assistance in Disaster theory, the second is civil and military relations theory, the third is Concepts Military Operation Other than War theory and the last is role theory.

With the nature of Military Assistance in Disaster theory by W. Nick Carter¹ will give us the concept of how to use the military component and coordination between the military and other components

¹ W. Nick Carter, Disaster Management; A Disaster Manager's Handbook, Asian Development Bank, Philippines 2008, page 94.

including all resources owned by the military in a disaster management activity. To strengthen the mechanism of military coordination with other components, the concept of civil and military relations theory by Huntington was used. To get a sharper approach from a military point of view on disaster management we need to use the concept of Military Operation Other than War theory. Finally, to provide a broad and comprehensive picture of the functions of each of the institutions involved, we need to use the role theory.

Through thought and consideration, it is expected that several theories and concepts that will be explained in depth in the description below will be useful. Furthermore, these concepts and theories will be used in analyzing all the phenomena found based on the reality and facts of Mt. Agung disaster management.

Theories and Concept that are relevant to the Topic

1. The nature of Military Assistance in Disaster

W. Nick Carter in A Disaster Management Handbook says that, "To ensure the availability of support of this kind from military units in emergency, armed forces commanders, at all levels from national to local, must be involved in the processes of disaster-preparedness planning with the civil government counterparts. Not only will such joint planning ensure that each is aware of the requirement and responsibilities of the other but equally important, the constraints and restrictions which may affect the provision of military assistance will be foreseen. In turn, this awareness will—or should—result in various forms of legislation both legal and fiscal to clear the way for effective collaboration between the civil and military authorities. In this process of disaster-preparedness

planning, various tasks may be identified that could lead to various degrees of disaster prevention."²

In that quote it is obviously that to make military involve in disaster management need various forms of legislation both legal and fiscal to clear the way for effective collaboration between the civil and military authorities.

W. Nick Carter also explained that clear definition of national disaster management policy is essential if a country is to establish and maintain adequate arrangements to deal with all aspects of its disaster threat. This applies to all levels of the national structure and organization, from the national government to the local government or community level. If such a policy does not exist, arrangements to deal with disaster will be ill-defined and inadequate. Consequently, loss of material and human resources will arise; the nation, as a whole, will suffer. Thus it is clear that coordination at all levels is absolutely necessary to ensure effective and efficient disaster management.

Indonesian territory is very vulnerable to natural disasters, volcanic eruptions, earthquakes, tsunamis, floods, landslides, forest fires and so on. All parties in all regions must be trained, equipped and have a smooth coordination system. Likewise, legislation must allow for rapid action and coordination in dealing with natural disasters.

² W. Nick Carter, Disaster Management; A Disaster Manager's Handbook, Asian Development Bank, Philippines 2008, page 99.

Based on a detailed description of the theory of the nature of military assistants in disaster management is clearly understood, through its role the military organization is designed to be on standby at all times and must have the skills to manage emergency situations in a natural thing.

2. Civil-Military Cooperation Theory

The United States as a country having very mature democratic system of government has realized the importance of civil supremacy over the military since the early 1950s. General MacArthur's words, written after he had been relieved of his Korean command "The supremacy of the civil over the military is fundamental to the American system of government, and is wholeheartedly accepted by every officer and soldier in the military establishment."³

General Arthur Arthur's opinion became one of the references to the formulation of military civil relations by Huntington. Huntington said that in the U.S. system the rightness or wrongness of civilian policy "does not concern the military man. He must assume that policy is 'the representative of all the interests of the whole community' and obey it as such.

Huntington also gave four recommendations, that are : First, the military needs to redefine its concept of professionalism to embrace all the missions that it has been assigned, including stability, peace-building, and reconstruction operations. Second, the military needs to recognize that the political and governance expertise required for many of the missions. Third, civil affairs units and their expertise (where military

³ Samuel P. Huntington, *The Soldier and the State : The Theory and Politics of Civil-Military Relations* (Boston: Belknap of Harvard Univ. Press, 1957)

political experience does exist) must be incorporated at every level of the military. Fourth, the political realities of the contemporary security environment require that civilian leaders establish political expectations and end states.⁴

Objective civilian control is a form of civilian control over the military by maximizing the professionalism of the military or the distribution of power between the military and civilians which creates military professionalism itself. When subjective civilian control ends by civilizing the military, objective civilian control ends by militarizing the military to make them an instrument of the state (Can be used only by political decision of civil authorities).

There are two levels of civil-military relations that need to be considered in an effort to maximize military professionalism and the objectives of civilian control, namely the level of power and the level of ideology.⁵ Power has two forms, namely as formal authority (formal authority) and informal influence (informal influence). The higher the level of authority of a group, the higher the level of unity of its structure and the broader scope of its authority, the stronger it will be in terms of its power. The level of authority refers to the position occupied by both groups (civil and military) in the hierarchy of government authority. That is, with a position of higher authority that can lower control in the hierarchy of government authority, civilians can exercise control over the military and vice versa.

⁴ Ibid.

⁵ Samuel P. Huntington, *The Soldier and the State: The Theory and Politics of Civil-Military Relations* (Boston: Belknap of Harvard Univ. Press, 1957).

Furthermore Samuel P Huntington once said that subjective civilian control is civilian control over the military by minimizing military power and maximizing civilian power in relation to the military.⁶ This method, according to him, could lead to unhealthy civil-military relations because it refers to efforts to control the military by politicizing them and making them close to civilians (civilianizing the military). Whereas objective civilian control is civilian control over the military by increasing the professionalism of the military, while its power will be minimized, but in no way obliterate military power, but still provide certain limited powers which can be.

The theory of Civil Military cooperation is one of the many relevant theories used in understanding cooperation between the military and civilians, especially in military operations during war, namely management of natural disaster management in this case.

3. Role Theory

Role theory concerns one of the most important characteristics of social behavior the fact that human beings behave in ways that are different and predictable depending on their respective social identities and the situation. As the term "role" suggests, the theory began life as a theatrical metaphor. If performances in the theater were differentiated and predictable because actors were constrained to perform "parts" for which "scripts" were written, then it seemed reasonable to believe that social behaviors in other contexts were also associated with parts and scripts understood by social actors. Thus, role theory may be said to concern itself with a triad of concepts: patterned and characteristic social behaviors, parts or identities that are assumed by social participants, and

⁶ Ibid

scripts or expectations for behavior that are understood by all and adhered to by performers.⁷

Associated with the organization, there is a version of role theory focused on social systems that are preplanned, task-oriented, and hierarchical. Roles in such organizations are assumed to be associated with identified social positions and to be generated by normative expectations, but norms may vary among individuals and may reflect both the official demands of the organizations and the pressures of informal groups. Given multiple sources for norms, individuals are often subjected to role conflicts in which they must contend with antithetical norms for their behavior. Such role conflicts produce strain and must be resolved if the individual is to be happy and the organization is to prosper.⁸

Role theory will help us analyze the role of each institution or organization related to disaster management, so that the most appropriate coordination model is based on the role of each institution or organization. That is why this theory to be adopted in analyzing military role or civilian organization regarding cooperation in natural disaster management.

4. Concepts Military Operation Other than War

The concept of Military operations other than war (MOOTW) adopts from the US joint staff doctrine can be applied to complement any combination of the other instruments of national power. To understand MOOTW, it is useful to understand how they differ from operations in war. Although MOOTW and war may often seem similar in action,

⁷ B.J. Biddle, Recent development in role theory, *Rev. Social.* 1986, page 68.

⁸ *Ibid*, page 73.

MOOTW focus on deterring war and promoting peace while war encompasses large-scale, sustained combat operations to achieve national objectives or to protect national interests.

MOOTW are more sensitive to political considerations and often the military may not be the primary player. More restrictive rules of engagement and a hierarchy of national objectives are followed. MOOTW are initiated by the National Command Authorities and are usually, but not always, conducted outside of the United States. These operations include humanitarian assistance, disaster relief, some nation assistance, foreign internal defense, most support to counter drug operations, arms control, support to US civil authorities, evacuation of non-combatants in a permissive environment, and peacekeeping. Noncombat MOOTW often can be a simultaneous operation with combat MOOTW.⁹

MOOTW is the duty of the Indonesian National Army (TNI) in addition to the task of war operations. In Law No 34/2004 concerning the TNI stated that MOOTW includes:¹⁰

1. Tackling armed separatist movements;
2. Overcoming armed uprisings;
3. Overcoming acts of terrorism;
4. Securing border areas;
5. Securing strategic national vital objects;
6. Carrying out world peace tasks in accordance with foreign policy;

⁹ US Joint staff, Joint Doctrine for Military Operations Other Than War, 1995

¹⁰ Law No. 34 / 2004 on Indonesian Armed Forces.

6.1 Securing the President and Vice President and their families;

6.2 Empower the defense area and the strength of its supporters early in accordance with universal defense system;

6.3 Assisting the tasks of government in the regions;

6.4 Assisting the National Police of the Republic of Indonesia in the framework of security duties and public order regulated in law;

6.5 Helps secure state guests at the level of heads of state and government representatives foreigners who are in Indonesia;

6.6 Helps to cope with the effects of natural disasters, displacement, and the provision of assistance humanity;

6.7 Assisting with search and rescue in search and rescue; and

6.8 Assisting the government in safeguarding shipping and flights piracy, piracy and smuggling.

The involvement of the TNI in several MOOTW tasks has been institutionalized such as Basarnas, National Agency Disaster Management (BNPB), National Narcotics Agency (BNN), Presidential Security Force (Paspampres), Maritime Security Coordination Agency (Bakorkamla, now Bakamla). In institutions specifically, many are assisted by active TNI members, ranging from the lowest ranks to the General three star. Some other MOOTW tasks have also been carried out by the TNI routinely, such as carry out the task of world peace with its Contest of Garuda, overcoming the uprising armed, securing border areas, and handling emergencies due to disasters natural or large-scale accidents.

The implementation of the MOOTW is required to be based on policy and State political decisions determined by the President / Head of Government. With policy or In this regulation, the TNI can legally carry out MOOTW and the Government can allocate budget for its implementation. The latest development about MOOTW is that the Government has established Regulations Government Number 2 of 2015 concerning Regulations for implementing law number 7 of the Year 2012 on handling social conflict. In this government regulation the TNI must provide assistance in using and mobilizing force to stop conflict if needed. The regulation intended to protect and provide a more optimal sense of community security, then the handling of social conflict is carried out comprehensively, coordinated, and integrated. Conflict social is defined as a feud and / or physical clash with violence between two groups a society or more that takes place in a given time and has a broad impact resulting in social insecurity and disintegration that disrupts national stability and hamper national development. Assistance to terminate conflict is carried out after it has been established determining the status of the conflict situation by the regional government or the central government.

Assistance with the use and mobilization of TNI forces is carried out to:

1. Stop physical violence;
2. Carry out temporary restrictions and closure of the Conflict area;
3. Carry out efforts to temporarily restrict people outside the home;

4. Carry out efforts to prevent people from entering the conflict area or leaving Conflict area for a while;
5. Secure national and regional vital objects as well as vital facilities and infrastructure possible mass targets;
6. Rescue, evacuation, and identification of Conflict Victims;
7. Protection of vulnerable groups;
8. Efforts to sterilize conflict-prone areas; and
9. Rescue of body and soul from Conflict Victims.

The problems mentioned above will be discussed in depth in the analysis chapter, especially those that have been applied so far in the Indonesian military environment so that the core issues that can hamper civil-military cooperation can be understood in the context of carrying out effective and efficient management of natural disaster management.

Conceptual Frame Work

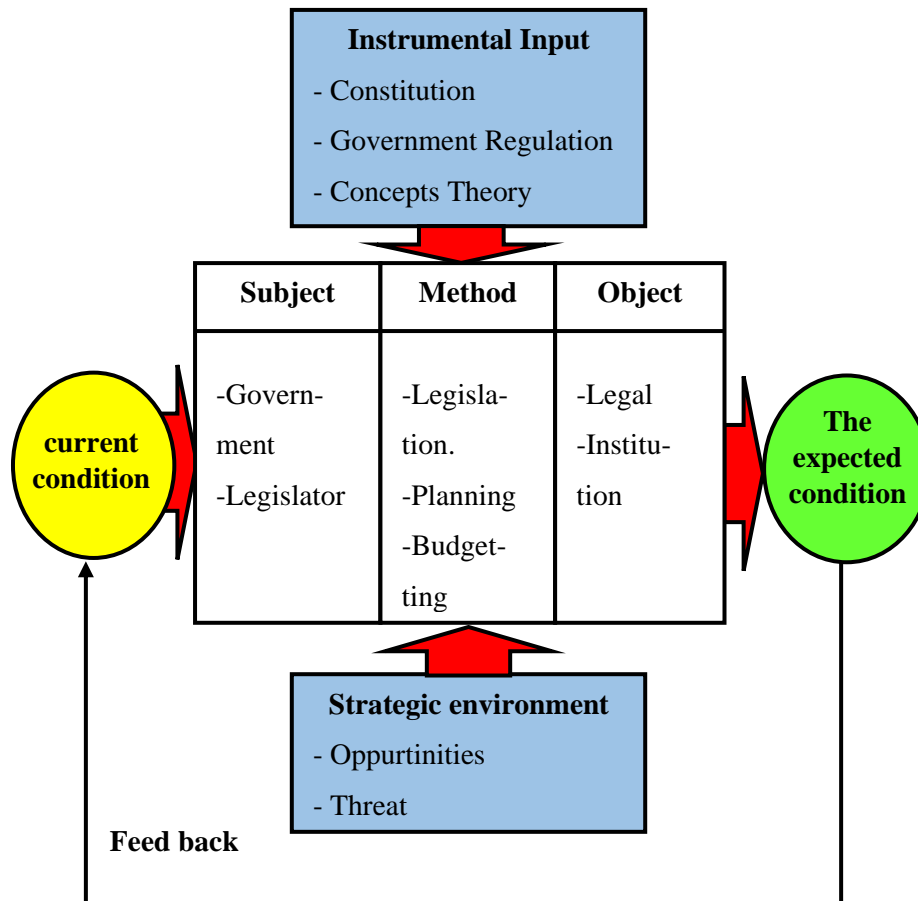
In this paper we use a systemic pattern in discussing and analyzing available data and facts to obtain a final conclusion that can give a comprehensive picture of the problems found so that they can provide recommendations of the research.

This process starts from the input, namely the real conditions that exist and occurs in the implementation of natural disaster management in the incident of the eruption of Mt. Agung in the Province of Bali in 2017 with the emphasis on issues that are the emphasis in this research regarding military cooperation with local government as in the fields, among others, as follows; government law and regulation, communication measure, capability preparation, organization, and command & control.

At the output of this process is an expectation in the form of ideal conditions related to military cooperation with local governments in natural disaster management, especially related volcanoes in the fields discussed at the input point. So that it is expected that in the future these conditions will be more effective than they are today and the disaster management management can be carried out more effectively which is the effectiveness, efficiency of the budget and most importantly of all that is reducing the number of human victims and property losses as low as possible.

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Figure 2-1 : Conceptual Framework



Source : Michael J. Jackson "System Approaches to Management

The process involves several organization as stakeholders which are the government in which there are agencies related to disaster management such as BNPB, BPBD, Indonesian Armed Forces, Indonesian Police, Local Government and related ministries. In addition the the House of Representatives of the Republic of Indonesia (DPR RI) and Regional People's Representative Assembly (DPRD) and related legislation they are also placed as research subjects. while the object are the legal and institutions related to the topic. Using many methods likes legislation and budgeting.

Infrastructures as instrumental input are laws, government regulations and theoretical concepts used. These three things will affect the analysis of data and facts obtained. Data and facts obtained from primary sources through questioners and from secondary sources in the form of open sources such as books, magazines, local newspapers or reports will be faced with applicable laws and government regulations and strengthened with theoretical concepts. Opportunities and threats are considered environmental influences. Opportunities and threats will be used to produce recommendations for making better coordination of disaster management between the government and the TNI. This influence is used to help analyze data and facts, with a conceptual approach to legislation, planning and budgeting

In the whole series of processes starting from the input, the data analysis process so that the output is always seen the final result and when needed will be given feedback to improve the process, so this is a continuation process until the best cooperation between the military and local government in management of natural disasters countermeasures in Bali Province is achieved.

Conclusion

In the description above, several theories and concepts have been put forward, namely; civil-military cooperation theory, the nature of military assistance in disaster theory, role theory, and concepts of military operations other than war (MOOTW), where consideration in determining the theories and concepts chosen are theories and concepts that are very relevant in analyzing data and facts related to the title of research paper.

Theories and concepts as mentioned above can be used as an analysis tool for data and facts which will be presented in the next section of this paper. Through these theories and concepts, it is expected that the analysis of data and facts can be made sharp enough and in depth so that it will be easier to understand the problems encountered to provide suggestions for improvements in the future.

The conceptual framework used in this research paper is a systemic pattern where data and fact input is required, determining the expected outputs or outcomes, in the process involving stakeholders as subjects who have the authority to do something about the object and in this process are guided by legal and regulatory norms. In this process an opportunity will be found where this can be used as a guide for important policy making in the context of solving the problems encountered as in this paper.

Chapter 3

Conditions and Problems That Occur amid Coordination Between The Military and Local Government

This chapter will describe some of the factors that apply when implementing the management of natural disaster eruptions of Mount Agung in Bali Province 2017 related to coordination between the Indonesian Armed Forces and local governments. Some things that will be discussed in this chapter are related to laws and regulations, communication, preparation, command and control organization, local government conditions, the condition of Indonesian Armed Forces units and coordination between the Indonesian Armed Forces and regional governments. It is hoped that knowing the influential factors discussed can add to understanding and become a reference material before starting to conduct an analysis.

Law on Disaster Management and Indonesian Armed Forces

1. Law number 24/2007 on Disaster Management

In the discussion using three main legal sources, namely Law No. 24/2007 on disaster management, Presidential Regulation No. 1/2009 on Indonesian National Board for Disaster Management, Presidential Regulation No. 17/2018 on the implementation of disaster management under certain conditions. In addition to the legal source,

regulations related to Indonesian National Board for Disaster Management are also used in the discussion.

The background of the Law on disaster management is in line with the mandate of the Preamble to the 1945 Constitution of the Republic of Indonesia, paragraph IV which mandates that the Government of the Republic of Indonesia must protect the entire nation and all of Indonesia's territory, promote public welfare, enrich the life of the nation and take part in implementing world order based on freedom, eternal peace and social justice.

As an implementation of the mandate, Indonesia which has a geographical area at the confluence of two continental plates, Asia and Australia, has a vulnerability to earthquake disasters. The Indonesian archipelago is also crossed by a volcanic path called the ring of fire where there are 127 active volcanoes throughout Indonesia. This has become vulnerable to the emergence of volcanic eruptions in almost all regions of Indonesia.

Potential causes of disasters in the territory of the unitary state of Indonesia can be grouped into 3 (three) types of disasters, namely natural disasters, non-natural disasters, and social disasters. Disaster Management is one part of national development namely a series of Disaster Management activities before, during and after a disaster occurs. Before 2007 there are still weaknesses both in implementing Disaster Management and those related to the legal basis. Because there is no law specifically addressing disasters. Paying close attention to these matters and to provide a strong legal basis for the implementation of Disaster Management, the Law on Disaster Management was drafted which in principle regulates the stages of a disaster including pre-disaster, during

emergency response and post-disaster. With the ratification of Law No. 24 / 2007 on disaster management, it is also compiled derivative regulations that regulate technical matters in disaster management.

The contents of this Law contain the basic provisions, namely the responsibilities and authorities of the Government and regional governments, the duties and functions of the Indonesian National Board for Disaster Management, the rights of the people that need attention, the role of related institutions, the characteristics of handling at each stage, budget support, supervision and sanctions for those who cause disaster.

In determining the status of disaster, it is regulated in Law number 24/2007 on Disaster management. However, in reality there are still problems in perceiving the law. If we pay attention to article 7 (2) of Law number 24/2007 on disaster management it is stated that the determination of the status and level of national and regional disasters includes indicators including; number of victims; loss of property, damage to infrastructure and facilities; wide coverage of the area affected by the disaster; and the socio-economic impacts caused. Paragraph (3) states, further provisions about the determination of the status and level of disaster as referred to in paragraph (2) shall be regulated by a Presidential Regulation (Perpres).¹

Then, in Article 3 of Presidential Regulation No. 17/2018 on the Implementation of Disaster Management in Certain Circumstances, it is stated that in certain circumstances, the Head of Indonesian National Board for Disaster Management can carry out disaster management

¹ Law number 27/2007 on Disaster Management.

including the ease of access in handling emergency disasters until a certain time limit, after obtaining a decision in a coordination meeting between ministries/institutions coordinated by the Coordinating Minister in charge of coordinating the implementation of disaster management.² At this stage, different perceptions are still often found to decide whether the scale of the disaster is local, so that local government is fully responsible or national scale, where the central government is also responsible for overcoming the disaster. So that it also influences in determining the use of the budget.

2. Law number 34/2004 on Indonesian Armed Forces

So far, the Indonesian Armed Forces has always been at the forefront in carrying out assistance tasks in dealing with natural disasters throughout Indonesia. Military involvement refers to Law number 34/2004 on Indonesian National Armed Forces.

But in practices there are still matter as stated in Law no 34/2004 article 7 (1) The main task of the Indonesian Armed Forces is to uphold state sovereignty, keep up the territorial integrity of the Unitary State of the Republic of Indonesia based on the Pancasila and the 1945 Constitution of the Republic of Indonesia, and protect the entire nation and all of Indonesia's blood spilled from threats and disturbances to the integrity of the nation and state. (2) The main tasks as referred to in paragraph (1) shall be carried out by: a. Military operations for war. b. Military operations other than war, namely to:

² Presidential Regulation number 17/2018 on Disaster management in an integrated state.

- 2.1 Overcome the armed separatist movement.
- 2.2 Tackle armed uprisings.
- 2.4 Overcome acts of terrorism.
- 2.5 Securing the border area.
- 2.6 Securing strategic national vital objects.
- 2.7 Carry out the task of world peace in accordance with foreign policy.
- 2.8 Securing the President and vice president and their families.
- 2.9 Empowering the area of defense and its supporting forces early in accordance with the universal defense system.
- 2.10 Assisting the tasks of government in the regions.
- 2.11 Assisting the police of the Republic of Indonesia in the framework of security and public order tasks stipulated in the law.
- 2.12 Helping to secure the level of heads of state guests and representatives of foreign governments who are in Indonesia.
- 2.13 Helping to cope with the effects of natural disasters, displacement, and the provision of humanitarian assistance.
- 2.14 Help search and rescue in an accident (search and rescue).
- 2.15 Assisting the government in securing shipping and aviation against piracy, piracy and smuggling.

Then, there is an explanation at point (3) Provisions as referred to in paragraph (2) are implemented based on state policy and political decisions.³

³ Law number 34/2004 on Indonesian Armed Forces.

The main problem is in paragraph 3 article 7 of Law 34/2004 where in paragraph 2 task number 12 contains the task of helping to cope with the effects of natural disasters, displacement, and the provision of humanitarian assistance, but there is matter where in pointer 3 article 7 it is stated that the provisions referred to in paragraph (2) is implemented based on state policy and political decisions, this shows that further regulations are needed so that the military has a strong reference. Indeed, the military has always taken the initiative to take action every time a natural disaster occurs while waiting for a political decision by coordinating with the local government, but there are many limitations, especially the budget problem that makes the results carried out less than the maximum.

Communication measure

Communication is an inseparable part of coordination. Coordination is very important in disaster management. A smooth communication network is needed especially at the emergency response stage, where many things do not run normally. Indonesian National Board for Disaster Management has different communication rules under normal conditions and emergency conditions. Under normal conditions, the Indonesian National Board for Disaster Management calls regularly to the provincial BPBD at the designated time. The provincial BPBD calls regularly to the district/city BPBD and the disaster radio community in the province. District/city BPBDs make routine calls to the local disaster radio community.

Indonesian National Board for Disaster Management coordinates with the Ministry of Communication and Informatics in allocating special disaster radio call sign names to district/city provincial BPBDs. The Indonesian National Board for Disaster Management Information and Public Relations Data Center manages the nickname allocation for Indonesian National Board for Disaster Management, provincial/district /city BPBD. The nickname list is set in the nickname book. Nicknames must be used at all times when the operator is conducting radio communication.

In communication between radio operators using code 11, code 10, code Z and code Q. Code 11 is used as a code in disaster communication and BNPB and BPBD operators are required to master the code. Whereas for code 10, Z code and Q code for BNPB and BPBD operators it is sufficient to know. The language used is Indonesian so that there is no misinterpretation of the exchange of data and information between one radio operator and another.⁴

In a state of emergency, all components are expected can work and communicate during an emergency response. Communication network in all condition is place Indonesian National Board for Disaster Management as center of communication so Indonesian National Board for Disaster Management can coordinate all component related to disaster management. Otherwise component of disaster management can only communicate with other component that has close task relation. The Rapid Reaction Unit only communicates with BNPB and field posts.

⁴ Indonesian National Board for Disaster Management Head Regulation number 6/2013, chapter IV.

For the provincial Quick Reaction Team, it can only communicate with the provincial BPBD and the field Command Post. Coordination with the Indonesian National Armed Forces, the Police and related Ministries, Agencies or Agencies is adjusted at each provincial/district/city level. The communication mechanism can be seen in the image below.

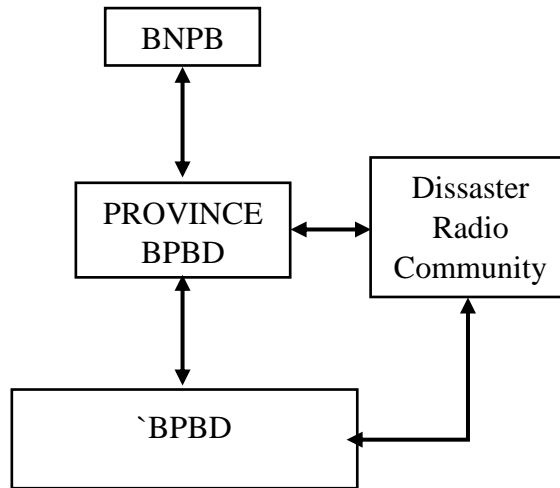
1. Normal Condition

Regarding to Indonesian National Board for Disaster Management's Head Regulation no 6 of 2013, on normal condition Indonesian National Board for Disaster Management will calls regularly to the provincial BPBD at the designated time. The provincial BPBD calls regularly to the district / city BPBD and the disaster radio community in the province.

District/city BPBDs conduct routine summons of local disaster radio community. This communication is intended to continuously monitor developments in the situation throughout Indonesia.⁵

⁵ Indonesian National Board for Disaster Management Head Regulation 6 / 2013, chapter III.

Figure 3-1 : Communication in normal condition



Source : Indonesian National Board for Disaster Management Head Regulation number 6/2013

2. Emergency Condition

Regarding to Indonesian National Board for Disaster Management's Head Regulation no 6/2013, in an emergency all components must be able to communicate. The Rapid Reaction Unit only communicates with Indonesian National Board for Disaster Management and field posts.

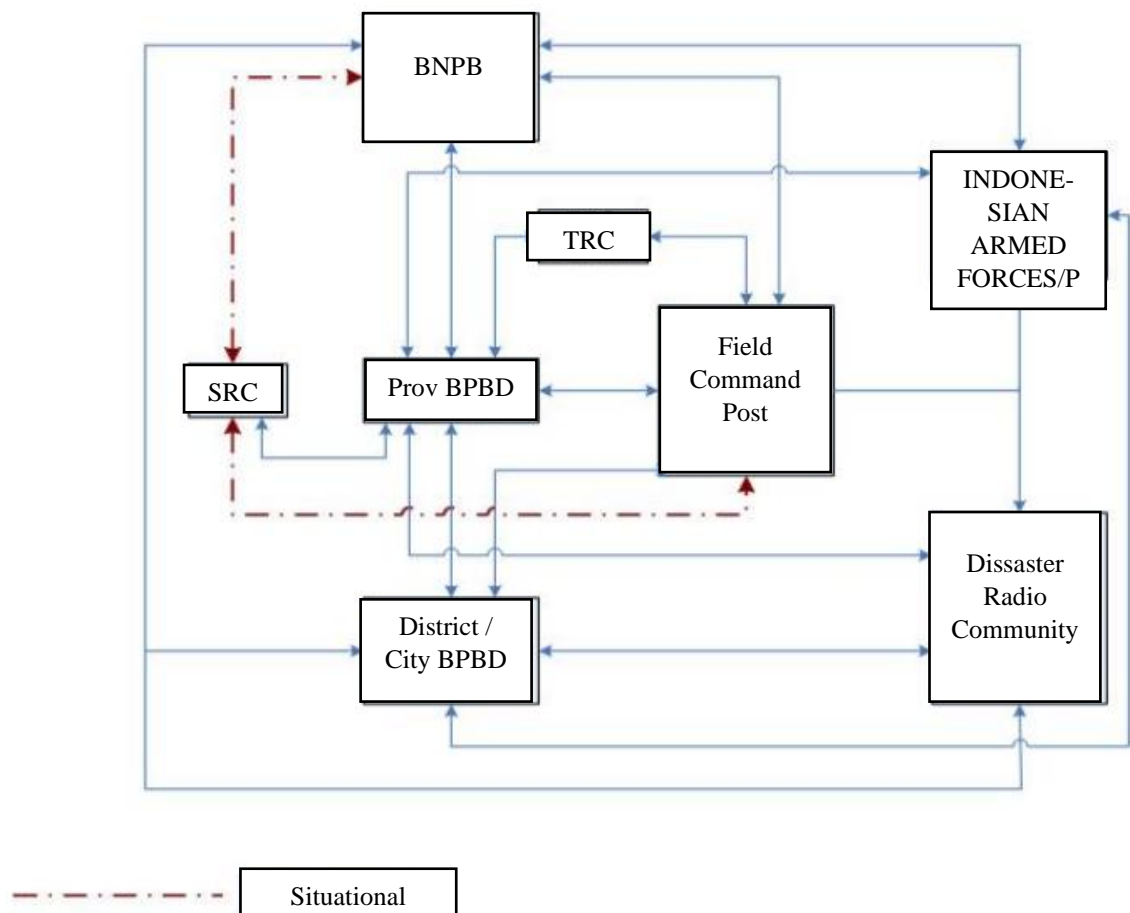
When looking at the communication nets ready, the Indonesian National Board for Disaster Management has a direct line of communication to the provincial BPBD, Regency/city BPBD, Indonesian Armed Forces.

For the provincial Quick Reaction Team, it can only communicate with the provincial BPBD and the field Command Post. Coordination with the Indonesian National Armed Forces, Police and

related Ministries, Agencies or Agencies is adjusted at each provincial/ district/city level. ⁶

Police and other related elements, field commanders, and the disaster radio community. Provincial and district/city BPBDs also have a direct communication net to all the elements mentioned above. So that disasters should be at any level, communication is no longer an obstacle.

Figure 3-2 : Communication in emergency condition



Source: Indonesian National Board for Disaster Management Head Regulation number 6 / 2013

⁶ Indonesian National Board for Disaster Management Head Regulation no 6 / 2013, chapter III.

Capability preparation

The implementation of disaster management at the stage of pre-disaster as referred to in Article 33 letter “a” of Law 24/2007 on disaster management and describe in Article 34 (First Paragraph) that covers situations where no disaster occurs and in a situation a potential for disaster to occur. The implementation of disaster management in situations where no disaster occurs includes disaster management plans determined by the Government and regional governments in accordance with their authority.⁷

This planning is done through the compilation of data on disaster risk in an area within a certain time based on official documents that contain a program of disaster management activities. The resulting document is the introduction and assessment of disaster threats, understanding of community vulnerability, analysis of the likelihood of disaster impacts, the choice of disaster risk reduction measures, the determination of disaster preparedness and mitigation mechanisms and the allocation of tasks, authority, and available resources. Disaster risk analysis requirements; compiled and established by the Indonesian National Board for Disaster Management. indicated in documents authorized by government officials in accordance with statutory regulations. Indonesian National Board for Disaster Management monitors and evaluates the implementation of risk analysis.

⁷ Law No. 24 / 2007 on Disaster Management. Article 33 and 34.

Disaster risk reduction is carried out to cut the adverse effects that may arise, especially in situations where there is no disaster. These risk reduction activities include the introduction and monitoring of disaster risks, participatory disaster management planning, the development of a culture of disaster awareness, increased commitment to disaster management and the application of physical, non-physical measures, and disaster management arrangements.

In reduce disaster risk, one of which can be done by implementing and enforcing a spatial plan that includes enacting regulations on spatial planning, safety standards, and applying sanctions against violators. The government periodically conducts monitoring and evaluation of the implementation of spatial planning and compliance with safety standards.

Preparations made for prevention include the identification and introduction of certain sources of danger or threat of disaster, control of the control and management of natural resources that suddenly and/or gradually become a source of disaster hazards, monitoring the sudden use of technology and/or gradually has the potential to become a source of threat or danger of disasters, spatial planning and environmental management and strengthening of community social security.

To improve the ability of staff from organizations involved in disaster management, education and training are needed and implemented by the Government in accordance with statutory regulations. Education and training are also needed for people living in disaster prone areas. Because as is the experience of Japan, people who are well educated and trained in dealing with natural disasters can cut the level of risk of casualties.

All of the above plans need to be integrated in development planning, carried out by including elements of disaster management plans in the central and regional development plans. This is very important to synchronize disaster management and development plans at all levels of government. Disaster mitigation activities are carried out to cut the risk of disasters for communities in disaster prone areas. This activity is carried out through the implementation of spatial planning, development arrangements, infrastructure development, building management and education, counseling, and training both conventional and modern.

Implementing disaster management in situations where there is potential for disaster to occur three activities, namely preparedness, early warning and disaster mitigation. Preparedness activities undertaken to make sure rapid and right efforts in dealing with disaster events. These preparedness activities are carried out through the preparation and testing of disaster emergency management plans, organizing, installing and testing early warning systems, supplying and preparing supplies to meet basic needs, organizing, counseling, training, and rehearsals on emergency response mechanisms, preparing evacuation sites, the compilation of accurate data, information, and updates on disaster emergency response procedures and the supply and preparation of materials, goods and equipment to fulfill the recovery of infrastructure and facilities.

Early warning activities are carried out to take quick and right actions in order to cut the risk of disasters and prepare for emergency response actions. Early warning activities are carried out through observing disaster symptoms, analyzing the results of observing disaster symptoms, making decisions by the authorities, disseminating information about disaster warnings and taking action by the community.

Disaster mitigation activities are carried out to cut the risk of disasters for communities in disaster prone areas. This activity is carried out through the implementation of spatial planning, development arrangements, infrastructure development, building layout and education, counseling, and training both conventional and modern.

The explanation in the earlier paragraph is an ideal condition in terms of capability preparation as explained in natural disaster management, but the reality that is found is that the readiness of each agency is still not ideal and still needs to be improved due to several obstacles. The main thing is joint training between the military and the local government, as is the Commander of the regional military district of Bebandem, Captain Infantry Jaya Antara answers questions what the coordination mechanism between your unit and local government is ? "The coordination mechanism in the field is still effective and efficient because each has not yet mastered the duties and responsibilities, the ability of staff in each agency still needs to be improved, especially in terms of management crisis. Communication nets in coordination often overlap and rely on each other." He further said that what needed to guarantee readiness was; "Disaster management exercises which are carried out in stages and continue to involve all agencies involved and activate the role of the community in disaster relief assistance."

Social vulnerability

Social vulnerability consists of population density parameters and vulnerable groups. Vulnerable groups consist of sex ratio, ratio of vulnerable age groups, ratio of poor population, and ratio of disabled population. Spatially, each parameter value is distributed in residential

areas per village / kelurahan in the form of a roster grid (pixels) based on WorldPop data references or developed dasimetric methods. Each pixel represents the value of social parameters (number of people) in all residential areas (Khomaruddin et al, 2010).

After the eruption of Mount Agung at the beginning of August 2017, many caused social vulnerability, as reported by the Risk Analysis Report.⁸

Cellphone network providers have taken mitigatory steps to ensure the cellphone network should continue to either be available or repaired and up and running quickly following an eruption. The government has established a radio-based communication system for early warning and to facilitate a quick and orderly evacuation in areas not well serviced by the cellphone network.

The situation and condition of refugees up to January 2018 based on data can be described as follows:

⁸ ADRA, HelpAge. "Risk Analysis Report Mt. Agung Volcano, Bali, Indonesia". (Online) Available <https://reliefweb.int/report/indonesia/risk-analysis-report-mt-agung-volcano-bali-indonesia>, December-2017. Accessed 25 March 2020.

Table 3-1 : Data: Refugee lately at 19 January 2018 18.00 P.M.⁹

No	Location (Region)	Men	Women	Total
1	Badung	300	290	590
2	Bangli	327	333	660
3	Buleleng	2286	2450	4736
4	Denpasar	159	177	336
5	Gianyar	1899	1608	3507
6	Jembrana	88	117	205
7	Tabanan	315	300	615
8	Karangaem	36139	15515	51654
9	Klungkung	2317	2328	4645
				66948

Source : Emergency response command post Karangasem.

Water supplies in the regency surrounding Mt. Agung are at high risk of being lost in the event of a major eruption. Already more than 50,000 people have been affected by the recent eruptions. It is expected that clean and adequate water supply will be a major issue following an eruption.

Although school-aged children have been displaced, this appears to have been managed well, primarily by integrating into schools near evacuation centres. This however has placed pressure on the schooling system.

A number of community health centres have been closed in the evacuation zone. At this point in time existing health facilities appear to have been able to accommodate the health needs of IDPs. There are three

⁹ Mount Agung eruption emergency task force 2017.

hospitals in the regency surround Mt. Agung, however none of them are located in the high risk zones.

Figure 3-3 : Indonesian President Joko Widodo visited refugees in Klungkung Bali August 2017



Source : <https://www.google.com/search?q=foto+jokowi+pengungsi+gunung+agung&tbm>. Accessed 26 March 2020.

The Karangasem Regency has the lowest HDI among the Bali Regencies. This indicates the population are likely to be more vulnerable to shocks. This is further exacerbated by the downturn in tourism, which is an economic driver in Bali, and through displacement the loss of opportunity to earn an income.

Given that the needs of current IDPs are not being fully met, and that services such as health and education are barely managing due to depleted services, it is expected that a major volcanic eruption of Mt. Agung would result in a humanitarian crisis. The assessment has

identified the greatest needs as being for shelter, wadh, food security, NFIs especially bedding and health needs.

Physical vulnerability

flow of hot lava, hot clouds and cold lava when it rains. However, a number of people within the radius of danger have been displaced, so the government is responsible for meeting basic living needs that have used up the budget as explained in economic vulnerability. Although during 2017 to 2018 there were several eruptions, infrastructure damage was not significant because the eruption occurred on a low scale. However, environmental damage cannot be avoided due to volcanic ash, hot clouds, hot lava and cold lava when it rains. as well as the occurrence of displacement and disruption of tourism due to volcanic ash rain that endangers health and the.

Indonesian National Board for Disaster Management has reported on Sunday 26 November 2017 at 05.45 A.M. local time.¹⁰ There has been an eruption with a high gray column of dark gray pressurized while the height reached 3,000 meters. PVMB continues to report the development of eruptions to the Indonesian National Board for Disaster Management Command Post and to the public through a press release.

¹⁰ Luh De Suriyani. "Dampak Erupsi Gunung Agung, Hujan Abu di Sejumlah Daerah di Bali." (Online) Available <https://www.mongabay.co.id/2017/11/27/dampak-erupsi-gunung-agung-hujan-abu-di-sejumlah-daerah-di-bali/>, 27 November 2017. Accessed 25 March 2020.

The level of eruption of the Great Volcano is now increasing from the phreatic to the magmatic phase (since the fire was observed at the peak at night on 11/25/2017 at 21.00 WITA. To this day the eruption of the magmatic phase accompanied by thick ash puffs continues to reach an altitude of 2,000-3,400 meters from the summit. The volcanic dust column continues to rise up to 4,000 meters from the summit to the southeast at a speed of 18 km per hour. Sutopo Purwo Nugroho, Head of the Indonesian National Board for Disaster Management Information and Public Relations.

Data Center, said that the analysis of the distribution of volcanic ash from the Himawari BMKG satellite showed that the ash distribution was east to southeast towards Lombok. The nature and direction of distribution of volcanic ash depends on the direction of the wind. Continuous puffs of ash are sometimes accompanied by explosive eruptions accompanied by a weak boom that is heard up to a distance of 12 km from the summit. Rays of fire were increasingly observed the following night. This indicates the potential for larger eruptions to be imminent.

Economic vulnerability

The economic impact caused by the eruption of Mount Agung was quite large on the Bali regional government budget as Bali Governor I Made Mangku Pastika explained to reporters at Sinar Agung magazine, "Anticipating the uncertain conditions of Bali Governor I Made Mangku Pastika periodically continues to extend the emergency handling of Mount Agung refugees. An extension marked by an increase in alert status (level 4) to provide ease of access in handling the threat of Mount

Agung eruption. Ease of access in the deployment of personnel , the use of the budget, procurement and distribution of logistics, administration and etc. Because in reality there are still hundreds of thousands that must be fulfilled their basic needs in evacuation. The economic and social impacts caused during the Awas mount Gunung Agung status are quite large Economic losses are estimated at Rp. 5 trillion to Rp 2 trillion, including losses from the tourism sector Rp. 264 billion, the banking sector Rp. 1.05 trillion, the job loss sector of refugees Rp. 204.5 billion, the agriculture, animal husbandry, handicraft Rp. 100 billion, and the sector. mining and development Rp 200-500 billion, this loss has not yet been realized take into account the education and health sectors which are also directly affected. Until now the Provincial Governments of Bali and the Regencies/Cities in Bali continue to conduct emergency response assisted by the Central Government from Ministries/Institutions, NGO, the business world and the community. BNPB coordinates the national potential by establishing a National Assistance Post at Karangasem Balirurat volcano eruption.¹¹

Based on the explanation of the governor of Bali it is clear that with the eruption of Mount Agung continuously has caused a large influx of refugees, this is enough to spend a large budget, especially to meet the basic needs of life for refugees scattered in several districts. The government is also repairing damaged infrastructure such as roads, bridges, clean water facilities for office buildings and places of worship, and the budget must also be spent to finance the task force to function

¹¹ I Nyoman Wage. "Upaya Pemerintah Hadapi Erupsi Gunung Agung", Sinar Agung edisi tahun 2017, 16 December 2017.

properly. Therefore besides the budget prepared for the emergency disaster the government must also divert several budget posts to meet all needs in the context of the eruption of the Great Mountain from the emergency response to the reconstruction and rehabilitation stages.

The private sector also felt the economic impact of the eruption of Mount Agung in 2017, including falling property prices, which is quite alarming for property entrepreneurs. The economic impact of the private sector was also stated by the chairman of the Bali chamber of commerce and industry in his statement to reporters in electronic newspapers as follows; "Bali Province Chamber of Commerce and Industry (Kadin) Banking's Deputy Chairperson, Made Arya Amitaba, said the economy on the Island of the Gods was experiencing a downturn. This is due to the impact of the eruption of Mount Agung. "The sluggish economy and the impact of the eruption of Mount Agung made the economy of the community also fell. Especially the property sector which is currently falling sharply," said Arya Amitaba in Batubulan, Gianyar regency, Bali, Sunday 31 December 2017. He said, the economic turmoil in 2017 was felt to have ups and downs. Even in the last six months the economic downturn was felt. Many entrepreneurs engaged in property development drag bank credit payments." Furthermore He said that "So that the movement in property developers in particular, has decreased. In addition, the purchasing power of citizens of the property has decreased dramatically," said the alumni of the Denpasar National Education University. "According to him, this world economic turmoil also had a very big impact. And even worse with the disaster in various areas, including in Bali. "So, if you want to buy a house and invest in property right now is the right time, because the price is very affordable," said Arya Amitaba

who is also the Managing Director of BPR Kanti. Arya Amitaba admitted that there were a number of customers who had released their properties at relatively cheap prices due to the current sluggish condition. They also have concerns that the economy will decline further. "There is a housing price that can go up to 50 percent compared to when the development of the property sector is progressing again. We also have houses that are ready to sell at affordable prices by the market," he said. Arya Amitaba does not deny that many property owners or business people have been cooperating with banks (BPR) to develop their businesses. However, when conditions are sluggish as they are now, they are forced to let go of their properties at low prices in order to carry out their obligations at the bank. "Yes, it is one step in order to pay off their obligations. And they do not want to lose their good name, where they get bank loans," he said.¹²

In Risk Analysis report, Minister of Tourism said;" Vulnerability to disasters increases when society's economic situation is low. Karangasem Regency has the lowest Human Development Index¹¹ (HDI) among the 9 regencies in Bali province. In 2016, there were 27,120 poor people, making the regency ranked the poorest in Bali. Since the increased volcanic activity of Mt. Agung in September up to December 2017, according to the Minister of Tourism, Arief Yahya, the losses within the tourism sector have reached IDR 9,000,000,000,000 (9 trillion) equivalent to around USD 663 million. During the same period, losses of

¹² Israr Itah. "Ekonomi Bali Lesu Selama 2017 Akibat Erupsi G. Agung". (Online) Available: <https://www.republika.co.id/berita/ekonomi/makro/17/12/31/p1t4pj348-ekonomi-bali-lesu-selama-2017-akibat-erupsi-gunung>, 31 December 2017. Accessed 25 March 2020.

IDR 2,000,000,000,000 (2 trillion) or USD 147 million due to bad credits in Karangasem Regency, considered to be as a direct result of loss of jobs due to the downturn in tourism, combined with moving to live in IDP camps has reduced the opportunity to generate income."¹³

Organization on Disater Management

The National Disaster Management Agency consists three main element of Head, Directing Element and implementing element. The head has the task of leading the National Disaster Management Agency in carrying out the duties and functions of the National Disaster Management Agency. The chairman of Indonesian National Board of Disaster Management (BNPB) has staff who has the duty to give input and suggestions to the Head in the implementation of disaster management, named The steering element. The Steering Element consist of 20 members that lead by one Head of Steering Element. The Members came from 11 government officials from Ministry that related to disaster management and 9 professionals. The functions of The steering element are formulating the concept of national disaster management policy, monitoring and evaluation in the implementation of disaster management.

The task of the implementing element is to manage disaster management in an integrated way which includes pre-disaster, disaster emergency, and post-disaster. Function of Implementing elements first,

¹³ ADRA, HelpAge. "Risk Analysis Report Mt. Agung Volcano, Bali, Indonesia". (Online) Availble [https://reliefweb.int/sites/reliefweb.int/files/resources/Risk%20Analysis%20Report%](https://reliefweb.int/sites/reliefweb.int/files/resources/Risk%20Analysis%20Report%20Agung%20Volcano%20Bali%20Indonesia.pdf), December 2017. Accessed 25 March 2020.

coordinate disaster management in the pre-disaster and post-disaster stages. Coordination is carried out with central and regional government bodies, communities, business institutions, international institutions and / or other parties as needed. Second is to carry out disaster management with the mobilization of human resources, logistics and equipment of related institutions, Indonesian police and Indonesian Armed Forces, as well as other things that are needed. And finally, as the executor of integrated disaster management at the central and regional government, the Indonesian Police, Indonesian Armed Forces, with due regard to disaster management policies and under the law.

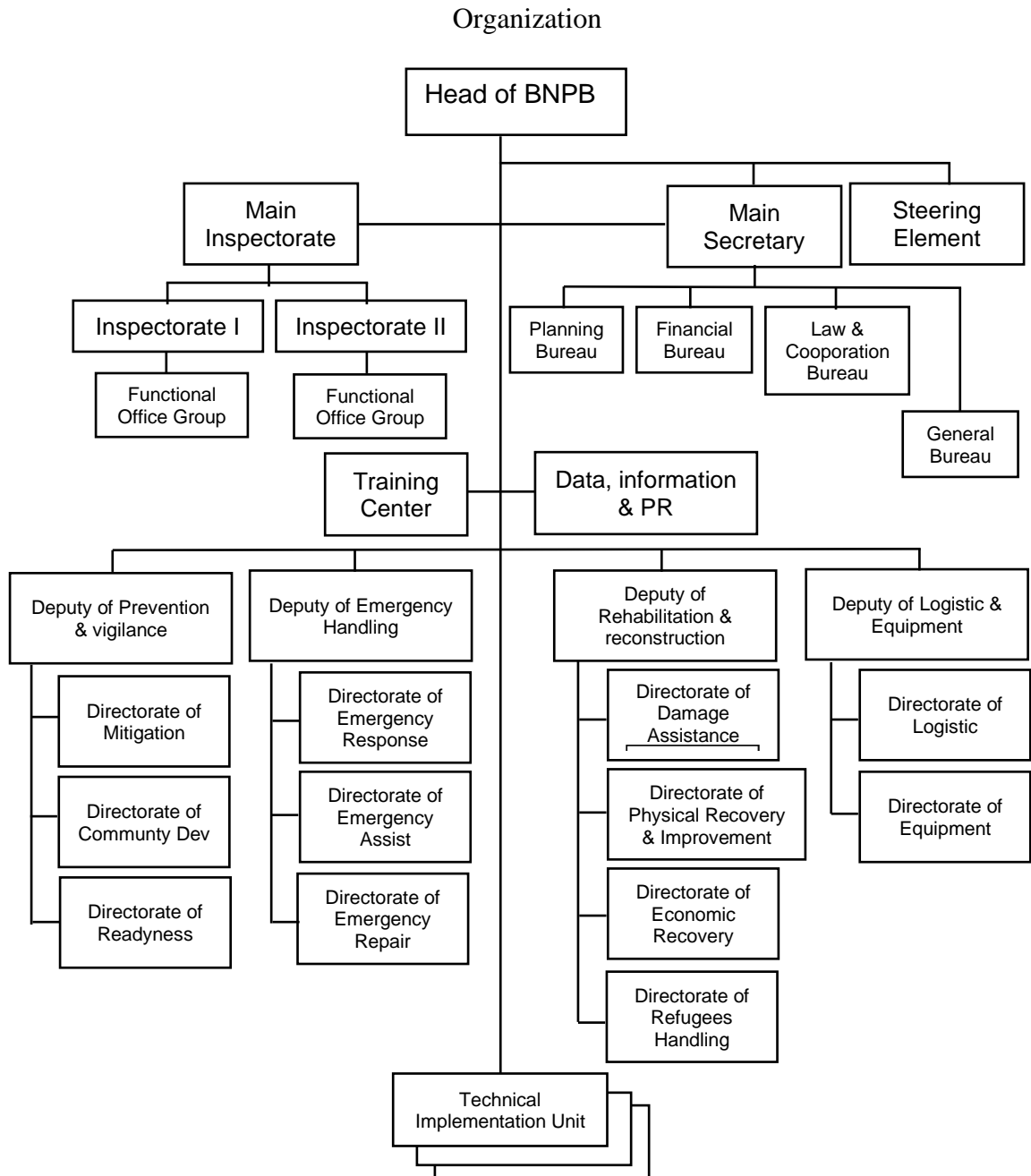
The Organizational Structure of implementing elements consists of seven units such as; The Main Secretary, Deputy for System and Strategy, Deputy for Prevention, Deputy for Emergency Management, Deputy for Rehabilitation and Reconstruction, Deputy for Logistics and Equipment, and Main Inspectorate.

Main Secretariat tasks are to coordinate; task, coaching, and to provide administrative support to all element organization. Deputy for Systems and Strategy task is to carry out the formulation and implementation of disaster management systems and strategic policies. Deputy for Prevention is in charge of organizing the formulation and implementation of preventive policies. Deputy for Emergency Management task are to carry out the formulation and implementation of policies on handling emergencies, including organizing emergency preparedness, emergency response and emergency transition to recovery. Deputy for Rehabilitation and Reconstruction task is to carry out the formulation and implementation of technical policies in the field of rehabilitation and reconstruction. Deputy for Logistics and Equipment

task is to carry out the formulation and implementation of policies in the field of logistics and disaster management equipment. Main Inspectorate task is to carry out internal supervision within the National Disaster Management Agency.

The Disaster Management Education and Training Center task are to carry out coordination, and develop human resource capacity. To do that, the Disaster Management Education and Training Center conducts 6 functions, namely the first is to train and educate human resource ability in national and international disaster

Figure 3-4 National Board of Disaster Management (*BNPB*)



Source : Law No. 24 / 2017 on BNPB

Management simulation. Second, to create programs and the accreditation of education and disaster management training. Third is to prepare and coordinate about norms, standards, rules and criteria in disaster management education and training. The fourth is to train and educate how to carry out basic, structural, and functional disaster management. The fifth implementation of the certification and professional competency test. And the sixth is preparation of monitoring, evaluation and reporting analysis in the field of disaster management education and training.

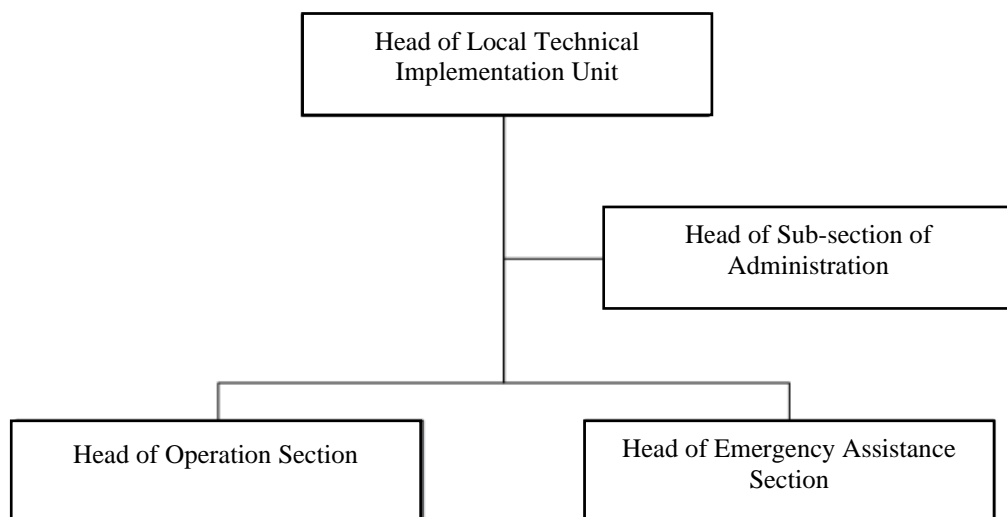
1. Organization Of The Local Government In Bali Province In Dealing With Mount Agung Eruption In 2017

The embryo of the formation of the BPBD of the Province of Bali began with the formation of the UPT. PB Emergency Operation Center under the National Unity and Polyclinic Agency of Bali Province through Regional Regulation Number 2 of 2008. Establishment of UPT. PB Emergency Operation Center was assisted by the French Red Cross (FRC) through a Joint Agreement between the Provincial Government of Bali and the French Red Cross on August 25, 2008.

BPBD of the Province of Bali was formed with Regional Regulation No. 4/2011 concerning the Organization and Working Procedures of Regional Apparatuses. The job description is determined by Pergub Number 52/2011. Bali Province BPBD began to be filled with personnel on January 18, 2012. The existence of the BPBD does not eliminate/reduce the role of other institutions in Disaster Management, but rather the BPBD carries out the coordination, command & implementation functions.

The vision of the BPBD of the Bali province is the realization of a planned, integrated community-based and technology-based disaster management in Bali. While its mission is to develop and improve the Bali Province Disaster Management system. Strengthening the capacity and resilience of all stakeholders in Disaster Risk Reduction; Providing protection and guarantee to the community through community empowerment; Utilizing technology effectively in Disaster Management; In the context of preparedness, the Bali Provincial BPBD has a Technical Implementation Unit (UPT) for the Disaster Management Operations Control Center (Pusdalops PB) operating on a 24/7 (continuous) system, so that when a disaster occurs, it will always be monitored.

Figure 3-5 : Organization structure of Bali's local technical implementation unit



Source : Regional regulation number 4/2011 on Organization and Working Procedures of Regional Apparatuses

Bali's Local Technical Implementation Unit has three function, first is data and information Center, second is Early warning system, third is Emergency response operations and last is Emergency services

In accordance with Law No. 24/2007 on disaster management, there are three stages of mitigation, namely pre-disaster response, emergency response and post-disaster. In accordance with the locus of research in Mount Agung, Bali, in the pre-disaster stage is an area that has the potential for disasters. Then the activities carried out are preparedness, early warning and mitigation. Preparedness is done to ensure fast and appropriate efforts in dealing with disaster events. Early warning is done to take quick and appropriate action in order to reduce the risk of disaster and prepare for emergency response. Mitigation is done to reduce the risk of disaster for people who are in disaster prone areas.

In the emergency response phase, the government conducts a rapid and right assessment, locats damage and resources, determination of the status of a disaster emergency, rescue and evacuation of affected communities, fulfillment of basic needs, protection of vulnerable groups and immediate recovery of vital infrastructure and facilities. While post-disaster tap there are two things done by the government, namely rehabilitation (recovery) and reconstruction (rebuilding).

Based on the study of Indonesian disaster risk published by Indonesian National Board for Disaster Management, the various hazards caused by volcanic eruptions are:¹⁴

¹⁴ Indonesian disaster risk published by Indonesian National Board for Disaster Management.

1. Hot clouds and avalanches. Ash drop on the slopes of volcanoes is called ladu. Ladu is a mixture of lava fragments, with sand and ash formed from active domes. The ladu will be referred to as an avalanche-hot cloud when the aborted volume becomes large and consists of lumps of glowing red lava and moving fast. If the amount of falling material is very large, then it is assumed that this heat-cloud avalanche is already the character of a hot-cloud eruption. The temperature of the hot clouds on the inside is very high, while at the edges it cools faster, to below 450 ° C. Hot-cloud flow can scorch plants, is harmful to humans and animals, and damages the lungs.

2. Avalanche volcano. Young volcanic cones have unstable structures that are prone to landslides and from ripples at the foot of the slope.

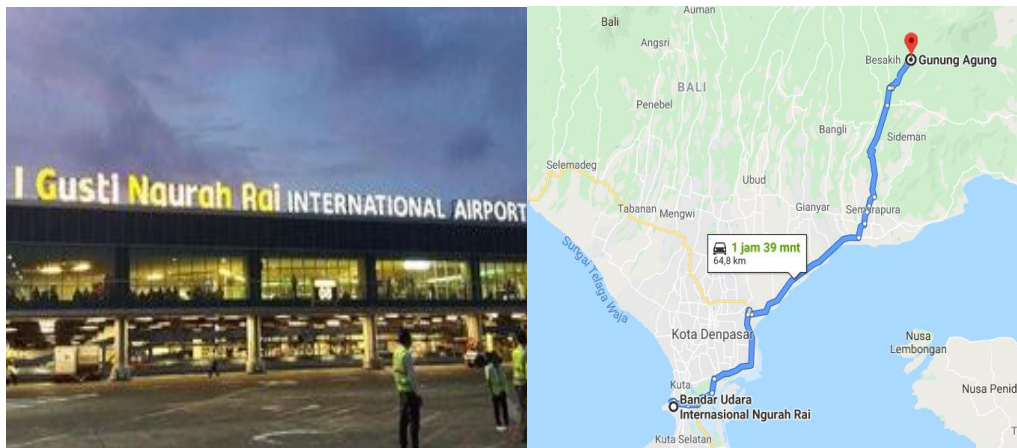
3. Lava flow. Because of the high exclusivity, breccia and dust are the main volcanic products in Indonesia, but lava flow is also a common symptom. The dynamic relative hot lava flow, follows the river valley as a stream, or flattened like a curtain of lava resulting from the eruption of phase B from Tangkuban Parahu. Lava flows in low viscosity can form lava tunnels, because the core of lava fluid continues to flow after freezing the outer mantle.

4. Lava Dome. The viscosity of magma increases with the addition of silica content. Some highly acidic andesite and dacite will easily form a dome, sometimes accompanied by a thick protruding lava tongue at the bottom. The shape of the dome is influenced by the configuration of the lava where it was extruded.

5. Lava. Lava is a stream of mud containing broken material and angled chunks.

6. Originating from volcanoes. Lava deposits can reach thicknesses of several meters to tens of meters. Lava can be divided into rain lava (cold) and lava eruption (hot)

Figure 3-6 : I Gusti Ngurah Rai airport in Denpasar capital city of Bali Province



Source: <https://www.google.com/search?q=foto+bandara+ngurah+rai>.
 Accessed 23 March 2020

Bali Province has an airport I Gusti Ngurah Rai International Airport which is located in Denpasar, and an air strip Lt. Col Wisnu air strip which is in Sumberkima village Buleleng District. Gusti Ngurah Rai Airport is very capable of supporting air traffic of large-bodied aircraft. Whereas Lt. Col. Wisnu's air strip can only be landed with small plane. Thus practically the airfield that can be landed by humanitarian aid transport aircraft is at I Gusti Ngurah Rai International Airport. The distance from I Gusti Ngurah Rai Airport to mount Agung is about 65 Km with a normal travel time of 1 hour 40 minutes.

The closest port to mount Agung is Padangbay Seaport as a ferry crossing port to Lombok, Nusa Penida, Gili Islands and other

islands in West Nusa Tenggara. With this capability, the Padangbay Port can be housed by ships carrying aid in the event of a catastrophic eruption of Mount Agung.

2. Organization Of The Indonesian Armed Force In Dealing With Mount Agung Eruption In 2017

Bali Island is part of Military Area Command (Kodam) IX/Udayana. Its headquarter located in Denpasar. Bali Island is the area of Military Resort Command (Korem) 163/Wirasatya area which is in charge of 8 Military District Command (Kodim) namely; Kodim 1609/Buleleng, Kodim 1610/Klungkung, Kodim 1611/Badung, Kodim 1616/Gianyar, Kodim 1617/Jembrana, Kodim1619/Tabanan, Kodim 123/Karangasem and Kodim 1626/Badung, Kodim 1616/ Gianyar, Kodim 1617/Jembrana, Kodim1619/Tabanan, Kodim 123/Karangasem and Kodim 1626/Badung, Kodim 1616/Gianyar, Kodim 1617/Jembrana, Kodim1619/Tabanan, Kodim 123/Karangasem and Kodim 1626/Badung Bangli. Mount Agung is in the Kodim 1623/Karangasem area of responsibility. While the area most affected by the eruption was in Karangasem District and there was a small portion in Bangli District.

There are some combat and support units of the Kodam IX/Udayana on the Bali Island such as 900th Raider Battalion/Satya Bhakti Wirottama in Singaraja, Buleleng District, 741st Mechanical Infantry Battalion/Garuda Nusantara in the Jembrana District, 18th Engineering Battalion/Yudha Karya Raksaka in Gianyar and 4th Armor Detachment/ Shima Pasupati in Kuta, Badung. In addition to military combat and support units, there are also Implementig Agencies who are ready to support Kodam operations, namely Health, Supplies and Transportation, Engineering, Communication and Information.

Kodam IX/Udayana has prepared planning in dealing with disaster management when mount Agung erupt. Those who will aid local Government is elements of Korem 163/ Wirasatya with the task of assisting local Government in dealing with disaster management in their areas of responsibility, accelerating disaster management and handling of refugees before, during and after disasters and implementing actions in accordance with the phasing of activities.

Figure 3-7 Districk region map in Bali Province



Source : <https://www.google.com/search?q=peta+pembagian+kabupaten+di+bali&tbm>. Accessed on 23 March 2020

Indonesian Armed Forces is aware of the country which locates in affected area. With such conditions, the Indonesian Armed Forces must be able to realize national disaster preparedness or National Disaster Preparation (NDP). This is in line with the mandate of law number 34/2004 on Indonesian Armed Forces. The army unit in the Udayana Regional Military Command IX has the capability needed to respond to natural disasters. For example a Mechanical Infantry Battalion is equipped with combat vehicles that can cross heavy off-road terrain. Engineering Battalion has the ability to repair or build bridges that have broken up due to the eruption of Mount Agung. All unit of the Army is equipped with communication tools that are very useful in coordinating during disaster response and so on.

In addition to the Indonesian Army, the Indonesian Armed Forces also has air and sea capabilities that can be deployed during the emergency response period. The Indonesian Air Force has military transport aircraft C-130 Hercules, CN-235, Casa C-295, Casa C-212 and transport helicopters. The Indonesian Navy has a Landing Ship Tank (LST), Landing Platform Dock (LPD), Hospital ships and helicopters that can be used during the emergency response.

Above has been explained in detail how the military readiness in the territory of the Province of Bali, but further attention to the factors that limit the military's readiness in dealing with disasters is related to the lack of elaboration of regulations as stated in paragraph three article 7 law number 34/2007 on Indonesian Armed Forces. This can be explained as the statement of the Commander of military district of Karangasem Lt. Colonel Infantry Bima Santosa where mount Agung is located, answering the question what the capabilities and limits of your

unit to cope with natural disasters are?, especially the eruption of Mount Agung. He answered as follows, "There are still limitation as follows; 1. Provide aid to local governments disaster management starting from the stages of mitigation, emergency response, rehabilitation and reconstruction. Very dependent on budget members, while the Kodim does not have a special allocation of funds for disaster management. 2. Kodim personnel do not have special qualifications such as SAR (Search And Rescue). 3. Equipment owned by Kodim is very limited in carrying out disaster management, and 4. Logistics Kodim relies on local governments."

3. Structure of Coordination and Cooperation Carried Out between Government (BNPB) and Indonesian Armed Forces in dealing with Mount Agung Eruption in 2017

Disaster management patterns get a new dimension with the issuance of Law No. 24 / 2007 on Disaster Management followed by several relevant implementing regulations, namely Presidential Regulation No. 08 of 2008 on Indonesian National Board for Disaster Management, Government Regulation (PP) No. 21 of 2008 on the Implementation of Disaster Management. In PP No. 21 / 2008 article 25 paragraph (1) explains that during a state of disaster emergency, the Head of the BNPB and the head of the BPBD are authorized to mobilize human resources, equipment, and logistics from agencies/institutions and the community to carry out emergency response. What is meant by "agencies/institutions" in this provision include, among others, the National SAR Agency, the Indonesian National Army, the Indonesian National Police, the Ministry of Public Works, the Ministry of Health, and the Ministry of Social Affairs.

The readiness of the Kodam IX Udayana Command, especially Korem 163/Wirasatya, faced with the threat of natural disasters of the eruption of Mount Agung on the island of Bali, is a formidable challenge that must be faced by Kodam IX Udayana and the Provincial Government of Bali. Disaster management regulated in law 24/2007, has established the basic principles of disaster management and the stages along with the flow of implementation of each stage. In practice, however, the Indonesian Armed Forces was only mostly involved at the emergency response stage. During the Pre-Disaster and Post-Disaster stages, Indonesian Armed Forces was not much involved.

For example at the stage of a disaster in a situation there is the potential for a disaster to occur. The activities that should be carried out are preparedness, early warning and disaster mitigation. In the case of preparedness, the Indonesian Armed Forces units that are closest to and have disaster management capabilities must always be trained, equipped and tested in carrying out mitigation efforts through protap tests and exercises with other elements. This has not been done optimally. Likewise in the case of early warning and disaster mitigation. Indonesian Armed Forces unit has not been optimally involved by the Bali Provincial BPBD. In fact, the reality is that the ranks of Kodam IX/Udayana are in the forefront of disaster management in the eruption of Mount Agung in 2017.

Military units in the province of Bali have the equipment and ability to carry out natural disaster management assistance tasks, especially on facing the eruption of Mount Agung, the focus of attention in the region. On the other hand the local government in this case is the Local Board for Disaster Management (BPBD) also has the means and

capabilities of natural disaster management. However, the form of cooperation in natural disaster management that has been carried out so far is only when disasters occur, even though preparedness should be done long before natural disasters occur, such as by conducting joint training in natural disaster management (it has not been done so far), especially in facing the eruption of Mount Agung so that good coordination and results will be better established.

Command & control

Implementing disaster emergency management is carried out through a system of disaster emergency management command which is activated based on the determination of the status of a disaster emergency in accordance with statutory provisions. Implementing the emergency disaster management command system is distinguished by status of district/city disaster emergency for disaster events in one district/city affected, several regencies/cities in one province and several regencies / cities in several provinces. The status of a provincial disaster emergency for a disaster occurrence in one or more districts/cities in a province. The status of a national disaster emergency. The implementation of the command system for disaster emergency response is adjusted to the status of the state of disaster in force, namely the status of an emergency alert, the status of an emergency response, and the status of an emergency transition to recovery.¹⁵

¹⁵ Indonesian National Board for Disaster Management Regulation Number 03 / 216, 15 November 2016.

The Disaster Management Command System Toolkit in its administration includes:

1. Disaster Emergency Management (PDB) Post as operating control device;
2. PDB Field Poses as operating tools;
3. PDB Support Post as an operational support device.
4. PDB Companion Posts as a companion device for operations.

At the time of the status of a district / city disaster emergency a device is activated consists of :

1. District / city PDB Command Post;
2. PDB Field Pos;
3. PDB Supporting Posts;
4. Provincial PDB Companion Post; and
5. National PDB Assistant Post

When the status of a provincial disaster emergency is established, the activated devices consist of:

1. Provincial PDB Command Post;
2. PDB Field Pos;
3. PDB Supporting Posts; and
4. National PDB Assistant Post

When the status of a national disaster emergency is determined, the activated devices consist of:

1. National PDB Post;
2. PDB Field Pos;
3. PDB Supporting Posts; and
4. Regional PDB Companion Post.

At the time of disaster emergency status the PDB Command Post is located in the capital of the district / city / province / country or in other regions by considering the ease of access and effectiveness. The command post has the following tasks first conduct studies to meet the needs of disaster emergency management based on the results of rapid assessments and contingency plans. Second carry out initial studies of efforts/plans for rehabilitation and reconstruction activities. Third draw up a plan for disaster response operations. Fourth coordinate related institutions/institutions. Fifth controlling the implementation of disaster emergency management. Sixth watch and evaluate the implementation of disaster emergency management. Seventh carry out management information on the implementation of disaster emergency management. Eight Regency / city or provincial PDB Post reports the implementation of disaster emergency management operations to the head of the regency/city BPBD or copies of relevant agencies/institutions. Ninth national PDB Post reported the implementation of disaster emergency management operations to the Head of BNPB copied by relevant ministries/agencies.

Besides has tasks, the PDB Command Post also has a function, first assessment of meeting the needs of disaster emergency management and planning of rehabilitation and reconstruction activities. Second planning, controlling, coordinating operations, monitoring, evaluating and reporting disaster management. And Third data management and information on disaster emergency management.

When the Regent of Karangasem Ni Gusti Ayu Mas Sumantri raised the status of the eruption of Gunung Agung from "Siaga" status (level 3) to be "Awat" status (level 4) emergency response command post

established and at that time the Karang Asem Military District Command (Kodim) Commander, Lieutenant Colonel Infantry Beny Rahardian, was appointed as Incident Commander, Beny immediately set up a command post, coordinated with relevant board in the local government and directed the entire disaster management management process as determined under law no 34/2004 on Indonesian Armed Forces and law 24/2007 on Indonesian National Board for Disaster Management. As reported by Kompas online about establishing alert status (level 4) of Mount Agung eruption: "The Karangasem regency government, Bali has determined the status of the Gunung Agung eruption emergency response. After the rise in status of Mount Agung from Siaga (level 3) to Awas (level 4), starting from Monday (11/27/2017), at 06.00 Wita. the highest mountain emergency on the island was set since Monday (11/27/2017) yesterday, until Sunday (12/10/2017). "Mount Agung's emergency response was carried out for 14 days," writes a decision of the Regent of Karangasem, I Gusti Ayu Mas Sumantri uploaded on Facebook, Indonesian National Board for Disaster Management, Tuesday (11/28/2017)."¹⁶

Conclusion

State of disaster situation is very important for the government to be able legally taking the necessary actions including the use of budget. But, it is not clearly mention in law number 24 / 2007 on disaster

¹⁶ <https://www.regional.kompas.com/read/2017/11/28/18323991/status-tanggap-darurat-erupsi-gunung-agung-sampai-awal-desember>, 28 November 2017. Accessed 26 March 2020.

management article number 7, that the government is slowly to take action so that people affected by the disasters.

Military units in Bali Province (Kodam IX / Udayana) consisting of combat units, supporting units and engineering units reinforced with navy and airforce elements have the means and ability to be deployed to carry out natural disaster management especially the eruption of Mount Agung which is the focus of attention and this has been included in the contingency plan. On the other hand the local government has a Local Board for Disaster Management unit with the means and ability to manage natural disasters along with the ability of the local government budget in accordance with Law number 24/2007 on disaster management. The two institutions still need to be coordinated in the management of natural disasters.

Due to highly preparedness of military units at disaster emergency response often local governments ask for help and hand over the position of incident commander held by the local territorial military leader. This has proven that military institutions are very dominant and are always at the frontline where other institutions are affected and have not functioned as they should. Therefore, the empowerment of the military's strength and ability to help local government on disaster management is needed.

Law number 34 / 2004 on Indonesian Armed Forces lists one of the tasks of assistance to the civil administration namely natural disaster management, but regulations governing the task of natural disaster management assistance are needed as a more detailed description so that the preparation and implementation of natural disaster management assistance tasks is more effective.

Local government should make the most of the existence and capability of military units deployed throughout the territory of the Province of Bali starting before and during natural disasters, especially in facing the eruption of Mount Agung based on history that has repeatedly occurred. Preparations made much earlier will give better results, especially to prevent fatalities.

Chapter 4

Coordination Between The Military and Local Government on Natural Disaster Management of Mount Agung Eruption in Bali 2017

Analysis and Discussion

As an effort to better understand the issues discussed, then in the discussion of this chapter an analysis of the data and facts written before is about the reality that occurred during the disaster management of the mount Agung eruption in Bali in 2017, especially those involving coordination between the military and the local government in Bali Province.

In analyzing existing data and facts, taking into account the factors that influence both internal and external as well as by knowing the existing strengths and limitations. Through comprehensive and in-depth analysis, it is expected to know some laws, preparedness, capability, communication measure, and command & control that have become obstacles so far and what can be recommended.

Law on Disaster Management and Indonesian Armed Forces

Law is as a main reference to execution any step in managing disaster management both Indonesian Armed Forces and government. During implementation that task so far has seen problem coordination within the two institution remain appear, so it is important to analyze the law number 24 / 2007 on disaster management and law number 34 / 2014

on Indonesian Armed Forces. Finally we can figure out the problem and find out what to do to fix it.

1. Law Number 24 / 2007 On Disaster Management

As explained in the previous chapter, the discussion will use three main legal sources, there are Law No. 24/2007 on Disaster Management, Presidential Regulation No. 1 / 2009 on BNPB and Presidential Regulation No. 17 / 2018 on the implementation of disaster management under certain conditions. These three laws and regulations are detailed with BNPB related regulations issued by the Head of BNPB. Whereas the main legal source will certainly not be separated from the 1945's Constitution of the Republic of Indonesia, which at the opening mandates that the Government of the Republic of Indonesia must protect the whole nation and all of Indonesia's territory, promote public welfare, develop the life of the nation and take part in carrying out world order based on freedom, eternal peace and social justice.

In Law number 24 / 2007 on disaster management, natural disasters separate natural and non-natural disasters. Natural disasters include natural earthquakes, volcanic eruptions, hurricanes, landslides, droughts, forest / land fires due to natural factors, plant pests, epidemics, extraordinary events, and space / celestial events . Non-natural disasters include forest / land fires caused by humans, transportation accidents, construction / technology failures, industrial impacts, nuclear explosions, environmental pollution and space activities. Social disasters include social unrest and social conflicts that often occur in the community.¹

¹ Explanation of Law number 24 / 2007 on Disaster Management

In dealing with the above disasters, it is carried out based on the principles of disaster management, that is fast and precise, priorities, coordination and integration, efficient and effective, transparency and accountability, partnerships, empowerment, non-discriminatory and non-proletarian.²

This grouping of disasters has covered all the possible disasters that could occur in Indonesia. This has become the Government's power in overcoming disasters. To overcome these disasters in accordance with the principles of disaster management, coordination, integration, partnership, empowerment and non-discrimination are needed. Thus all components of the Indonesian nation can be involved to cope with disasters. Associated with the TNI this is a strength reason that legalizes actions under the coordination of the Government through BNPB in carrying out disaster management steps by synergizing together with all capable elements in accordance with the fields in disaster management. Thus in the Province of Bali also became a legal force for Military Area Command (Kodam) IX / Udayana along with all of its staff including Naval Port of Denpasar and I Gusti Ngurah Rai Air Force Base (AFB) Denpasar in the Kodam IX / Udayana area to take part in disaster management. This is in line with the theory of W. Nick Carter in the nature of military assistance in disaster, said that "To ensure the availability of support of this kind from military units in emergency, armed forces commanders, at all levels from national to local, must be involved in the processes of disaster-preparedness planning with the civil government counterparts. Not only will such joint planning ensure that each is aware

² Law number 24 / 2007 on Disaster Management article number 3.

of the requirement and responsibilities of the other but equally important, the constraints and restrictions which may affect the provision of military assistance will be foreseen.³

In Law No. 24 / 2007 on disaster management does not explicitly mention the important role of the TNI as a vital part in disaster management and how it relates to the Indonesian National Board for Disaster Management (BNPB), even though every natural disaster in Indonesia the TNI is always in the frontline and very dominant position. its role, as well as the Rescue And Search Agency (SAR), and other Institutions.

As W. Nick Carter on his theory in the nature of military assistance in disaster further said that, "In that quote it is obviously that to make military involve in disaster management need various forms of legislation both legal and fiscal to clear the way for effective collaboration between the civil and military authorities."⁴

In Law Number 24 / 2007 on disaster management there is a definition of disaster, but until now there is still no clear regulation on the determination of the size of events that can be categorized as disasters, on events and losses what an event is said to be a disaster. Besides that, clear rules on the determination of status (national, provincial, and district / city) and the level of disaster that has who is authorized and can carry out the determination of disaster status is now still discussion. All of these problems will have an impact on the budgeting system and funding for disaster management activities as well as the source of the funds for

³ W. Nick Carter, *Disaster Management; A Disaster Manager's Handbook*, Asian Development Bank, Philippines 2008, page 99.

⁴ Ibid.

handling, whether that comes from the district / city, provincial or state budget.

Determination of the status and level of national disasters is carried out based on five indicators, namely the number of victims, loss of property, damage to infrastructure and facilities, the extent of the area affected by the disaster and the socio-economic impacts caused.⁵ But the weakness is that there are no standards that govern the determination of the status and level of disasters. So the determination depends more on the Central Government's consideration.

2. Law Number 34 / 2004 On Indonesian Armed Forces

Referring to the Joint Doctrine for Military Operations Other Than War explained that, "MOOTW are more sensitive to political considerations and often the military may not be the primary player. More restrictive rules of engagement and a hierarchy of national objectives are followed".⁶ So it is very clear that to carry out military operations other than war must be strictly regulated to avoid political sensitivity.

However, in Law Number 34 of 2004 on the Indonesian Armed Forces in article 7 point b, there are 14 tasks of TNI assistance in the context of carrying out the main tasks of the TNI, one of which is to help the government carry out disaster management. In the next section there is a sentence that to be able to carry out these tasks requires further regulation, which until now the regulation does not yet exist, so this often becomes a slow bureaucratic obstacle, which must wait for a central

⁵ Law number 2 / 2007 on Disaster Management article number 7.

⁶ US Joint staff, Joint Doctrine for Military Operations Other Than War, 1995

decision, whereas in a disaster emergency situation it needs a quick decision and Immediate action possible.

Communication Measure

Radio communication is one of the supporting facilities for the Disaster Management Center in conducting verification, updating data and disaster information. There will be more intense communication both data and voices between the BNPB operation control to Provincial/ District BPBD when normal conditions are exchanged. During an emergency response, provincial / district / city BPBDs can set up a communication radio station at the disaster site, and can coordinate with the communication and information services department on the use of radio frequencies.

The operation of radio communication is at the Disaster Management Operational Control Center and under the responsible for the Deputy for Emergency Management of the BNPB or the provincial / district / city BPBD's Logistics and Emergency Division.⁷ Related to the management and maintenance of radio communication infrastructure, it is under the coordination of the BNPB Information and Public Relations Data Center or the provincial / district / city BPBD Secretariat.

In normal condition, radio communication is only carried out between BNPB elements, namely BNPB, Provincial BNPB and Regency / City BNPB. However, in an emergency situation disaster communication can be carried out between BNPB, Field Command Post, Provincial /

⁷ Regulation of the Head of the National Disaster Management Agency Number 15 of 2012 concerning Guidelines for the Center for Disaster Management Operational Control

Regency / City BPBD, TNI, Polri, Radio Disaster Community and rapid reaction units.⁸

Supporting elements in radio communication in disaster conditions is sufficient to be carried out in Bali Province. Strengthened by the ORARI amateur radio community in Bali (ORDA Bali) which is widely spread throughout the Province of Bali.

The availability of International airport facilities and infrastructure I Gusti Ngurah Rai and a location close to Surabaya as one of the centers of goods distribution in Indonesia makes the distribution of communication devices in times of disaster relatively not too difficult. In East Java there is also Abdurrahman Saleh AFB as the home base of the 32nd air squadron that operates the C-130 Hercules transport aircraft. This aircraft can be used to support logistics distribution quickly in times of disaster.

Bali as a mainstay of tourism in Indonesia has certainly repeatedly held international level events such as summits and other multilateral meetings. Of course, every time an international level activity is carried out adequate communication devices will be set up. This has become one of the strengths of the Province of Bali in conducting disaster communication.

Besides the strength as explained before, there is a factor that has become a weakness in communication is that checks on disaster communication readiness are rarely carried out both at the Provincial and Regency levels of Karangasem which have high vulnerability to the eruption of Mount Agung. In the statutory regulations and the technical

⁸ Regulation of the Head of the National Disaster Management Agency Number 6 Year 2013 concerning Guidelines for Radio Disaster Communication.

rules of the Head of BNPB it is indeed not written about the implementation of the disaster communication test at the regional or central level, so that to be needed immediately, disaster communication requires time to synchronize.

The communication device is one of the mandatory equipment possessed by all units of the Army because the communication will support the implementation of good and smooth command and control. Likewise in the Kodam IX / Udayana area, the units below it are already equipped with standard communication devices. To make sure a more optimal deployment carried out by the Kodam Transportation. The availability of good equipment and communication systems in military units in Bali are opportunity for the implementation of coordination between the military and local governments in disaster management, starting from preparation stage before disaster occurs, during an emergency response and post-disaster.

Surface conditions consisting of mountain ranges have a negative effect on communication skills. Many mountains will cut the range of radio waves that require an open field between the sender and receiver. That is why sometimes need more sophisticated radio communication device to be set up.

This method is certainly not flexible, even though flexibility is needed in the recovery of disasters, especially volcanoes. The most flexible communication device that is handy talky (HT). But it will not be effective on mountainous terrain. Solutions to increase the range of the HT range and radio rig can also use a radio transmit system (RPU) or often also called a repeater.

Capability preparation

The preparation of capabilities can basically be divided into the preparation of human resources, facilities and infrastructure as well as systems and methods. Human resources related to affected communities and staff who deal with disaster situations. Facilities and infrastructure related to material that can be used when disaster conditions occur. While the systems and methods are related to the systems and methods of using human resources and infrastructure that have been prepared in advance so that they can effectively and efficiently carry out disaster management actions.

1. Capability of Local Government In Disaster Management

The eruption of Mount Agung in Bali has occurred several times so that the local government and the community have experienced how they should act if an eruption occurs. Besides that, it was approved by Law No. 24 / 2007 on Disaster Management requires local governments to form a board that functions to carry out the task of disaster management. The local government in Bali has formed the local board for disaster management (BPBD) based on regional head regulations, so that the local government can legitimately allocate an annual budget. Through this budget, the local government has tried to complete the organization along with the equipment needed especially to deal with the emergency response period.

Because the location of mount Agung is in Karang Asem Regency, therefore, the government has prepared everything in case the disaster occurred. The government has prepared readiness including training to the BPBD and community to face mount Agung eruption. The training material include evacuation routes, place of refuge,

communication devices, hospital, etc. Thus the local government has capability in dealing with natural disasters, especially mount eruption that could sometime be occurred.

2. Capability of Military Area Command in Bali Province (Kodam IX / Udayana)

Kodam IX / Udayana Headquarters along with its territorial units, and its support units have arranged contingency plans for the eruption of Mount Agung, prepare equipment needed during emergency response in accordance with the budget program, conduct Post Exercise and technical and tactical exercises. Such conditions have made the territorial military unit have the ability to carry out disaster relief response tasks in the Bali Province region.

Figure 4-1 : 18th Engineering Batallion construct a bailey bridge on exercise



Source : <https://kodam-udayana.mil.id>

As integral parts of Kodam IX / Udayana, 18th Engineering Battalion / Yudha Karya Raksaka in Gianyar which is only 40.5 Km away or 1 hour 20 minutes to Mount Agung makes the strength of TNI units in disaster management. This Engineering Battalion has strength in carrying out construction activities and making emergency facilities such as emergency bridges, refugee barracks and so forth. The existence of 900 Infantry Raider Battalion / Satya Bhakti Wirottama in Singaraja, Buleleng District, 741st Infantry Mechanical Battalion 741 / Garuda Nusantara in the State City of Jembrana District is also a strength factor. With this material equipment possessed by Yonif, it can reach the affected areas of the eruption to aid with evacuation, distribution of goods and post-disaster stage.

However, besides the readiness as explained in advance limitations, especially in subordinate units such as the readiness of staff and material. The existing battalion had only limited tools be used to carry out disaster management. It had better ideally if it is fully equipped with the tools needed couple with its maintenance.

3. Coordination of Capability preparation between the military and local government to manage disasters

In terms of the preparation capability of both the local government and the military unit, it seems that each has done the best, both the readiness of the units, personnel and equipment to carry out disaster management in the region. this is good news for disaster preparedness.

However, each instiution readiness has not yet been integrated, and obviously seen when the Commander of the regional military district of Bebandem, Captain Infantry Jaya Antara answers

questions what the coordination mechanism between your unit and local government is ?"The coordination mechanism in the field are neither effective nor efficient because each has not yet mastered the duties and responsibilities, the ability of staff in each agency still needs to be improved, especially in terms of management crisis. Communication nets in coordination often overlap and rely on each other. He further said that what needed to guarantee readiness was; "Disaster management exercises which are carried out in stages and continue to involve all agencies involved and activate the role of the community in disaster relief assistance". It seems that a joint training between the local government and the military is needed in disaster management especially in dealing with the eruption of mount Agung, which has not been carried out so far."

Therefore, the implementation of disaster management task will be better if it is carried out by various related parties in order to unify the efforts made to obtain maximum results.

As W. Nick Carter in his theory "in the nature of military assistance in disaster", said that, "Not only will such joint planning ensure that each is aware of the requirement and responsibilities of the other but equally important, the constraints and restrictions which may affect the provision of military assistance will be foreseen. In turn, this awareness will—or should—result in various forms of legislation both legal and fiscal to clear the way for effective collaboration between the civil and military authorities".

It is obvious that all readiness from both military and local government, if combined, will increase readiness. Something that must be done is a joint exercise in dealing with natural disaster contingencies

both Command Post Exercise, technical training, and tactical exercises for future readiness.

Organization

1. Central Organization / Indonesian National Board for Disaster Management (BNPB).

Organization at the central level as explained in law number 24/2007 on disaster management article number 10 stated that the organization at the central level is Badan Nasional Penanggulangan Bencana (BNPB) / Indonesian National Board for Disaster Management. The organization consists of two elements below, namely; steering and implementing elements. In the description of membership, it is explained that the government officials are involved or members of the professional community while the mechanism for the appointment of membership is carried out through a fit and proper test conducted by the legislative council.

The problem that has to be considered is of providing reliable and skilled Human Resources (HR) is very important in the process of disaster management, including its mentality because in the process of disaster management, which is done not only during a disaster but during a disaster response and post-disaster.

However, related to the role of local Non-Government Organizations (NGO) and institutions, other volunteers, it has also not been regulated in the Disaster Management Law. This can be seen from the cases in the field showing that NGO or non-government organizations are often not synergistic in disaster management.

2. Local Organization / Local Board For Disaster Management (BPBD)

Based on law no. 24 / 2007 on disaster management local government both Province and Region must immediately form an organization at the local level. The Governor of Bali Province has issued Governor Regulation No. 29/2009 on Bali Province of Local Board for Disaster Management and Karangasem Regent also issued Bupati Regulation No. 37/2009 on Karangasem Region of Local Board for Disaster Management.

Both local government regulations are almost the same as the central government, namely the organization consists of elements of influence and implementing elements only limited in scope only at the local regional level. Experiences show that during emergency response period the Regency leader (Regent) and Provincial leader (Governor) are always point out a territorial commander of Indonesian Armed Forces, as an Incident Commander who takes action everything to manage disaster. But on the regulation is not clear enough stated what the responsible is, what resources that can be used for, and to whom coordination must be carried out. So from the time of pre-disaster or the preparatory stage as if there was no connection between the regional military unit and the local government, coordination had only been seen since entering the disaster emergency response where the regional commander was appointed as an Incident Commander by the Governor or Regent. Therefore in the regional head regulation should be stated explicitly regarding the involvement of military units, coordination can be done long before there is a disaster and the organization will be more effective.

3. Military Organization In Disaster Management

The deployment of the Indonesian Armed Forces territorial unit starting from the Regional Military Command, the Military Resort Command, the Military District Command and the Military Rayon Command with combat units, combat assistance units and administrative support units is very appropriate and appropriate in carrying out the tasks of humanitarian assistance in carrying out disaster management, especially during response disaster wherein civil society, infrastructure and community organizations experience the most serious disruption. The task of humanitarian assistance implementing disaster management is in accordance with law no. 34/2004 on Indonesian Armed Forces mainly on article number 7.

Although the title of regional military unit covers the entire territory of the island of Bali, there are still limitations because the main task of the main military unit is as a defense force, while the task of disaster relief humanitarian assistance in the form of assistance to the civilian government. Some of the limitations include equipment, professional staff and budget constraints. but for the factors of readiness, responsiveness and speed of the title if at any time needed at any time can be moved in a relatively short time this can be fulfilled because the regional military unit has contingency plans that are annually evaluated and exercises are carried out gradually and continuously.

4. Civil Society And Non-Government Organizations

One of the disaster volunteer organizations is the Disaster Preparedness Cadet Team (TAGANA), is a social volunteer and social welfare worker who comes from the community and has concern and is active in disaster protection in the field of social protection. This

organization is based on social minister regulation number 28 / 2012. TAGANA has the task of carrying out disaster management, starting from pre-disaster, during emergency response, and post-disaster, and other social problems handling tasks related to disaster management. Each local government must coordinate TAGANA who can be used whenever disaster occurred.

Command And Control

Immediately after the mount Agung eruption the governor of Bali Province, Lieutenant General Police (Ret) I Made Mangku Pastika asked the Kodam IX / Udayana Commander that the Karangasem Kodim Commander Lieutenant Colonel Inf Beny Rahardian acted as the Incident Commander to take control, coordinate and order the disaster emergency response organization to carry out his assignment. At that time Karang Asem Regent Ni Gusti Ayu Mas Sumantri, S. Sos., MAP. prepare several buildings and buildings in the Tanah Ampo seaport complex that have not been used by transportation activities to be used as Command Posts and logistics warehouses. Radio communication facilities were also immediately built to facilitate communication with units under the Command Post. Military units in the Karangasem Kodim are acting as Command Post units at the District level. The elements of support from the civil administration, community organizations and NGOs immediately joined the Command Post and were ready to carry out their duties.

At the beginning, Command Post was established and Incident Commander takes control where various elements of civil and NGO joined in, there seemed to be a confusion of duties and responsibilities,

but with strong leadership the Incident Commander was able to overcome and take command of the emergency response. This happens because in the governor and regent regulations concerning BPBD it is still necessary to evaluate how the organization is structured during the emergency response and how the mechanism works and the duties and responsibilities.

One of the strengths of local cultural customs is the initiative of customary leaders in the Karangasem region who coordinate and control their citizens in carrying out evacuation, logistical distribution and division of tasks and responsibilities for settlement security, so that greatly assist the main tasks of the emergency response Command Post tasks. The customary leaders form an organization independently and utilize transportation owned by villagers, utilizing handy talkie radio communication facilities and mobile phones so that the evacuation running normally.

At that time the head of the Indonesian National Board for Disaster Management and staff were also present in the Command Post then leading a joint meeting, giving attentions and instructions and most importantly also helping the budget for the organization of the Command Post emergency response.

Social and Economy, and Physical Damage

1. Social and Economy

Bali Province has an amazing land and culture, making it one of the leading tourism destinations for Indonesia and even the world. Therefore Bali is a great source of foreign exchanges for Indonesia's national income. As Made Antara and Made Sri Sumarniasih in a Journal

of Tourism said that, " Bali is a small island with an area of 5,636.66 km² or 0.29% of the total area of Indonesia (Anonym, 2015), one of 34 provinces in Indonesia and became one favourit tourist destinations in Indonesia and even in the world. In the 2015, Bali was ranked second out of 10 best islands in the world according to the magazine published by the American "Travel and Leisure" and his website contains the results of voting on the 10 best island world of hundreds of thousands of islands as a destination travel and places to relax. The Indonesian government is currently very hope that tourism becomes source of foreign exchange complementary foreign exchange from exports of agricultural commodities and oil and gas.⁹

However, due to the mount Agung eruption in 2017 has reduced the level of income. It was because Bali closed from the tourism arrival both domestic and oversea. I Gusti Ngurah Rai International Airport and Padang Bay Seaport were closed to all passengers, so the tourist spots around Bali could not accessed by land, sea and air due to security concern. There was full of volcanic ash and lava that could threat human life. As a result, many losses were suffered by the region as quoted from the statement of Sinar Agung local magazine that, "Dampak ekonomi dan sosial yang ditimbulkan selama status Awas Gunung Agung cukup besar. Kerugian ekonomi diperkirakan Rp 1,5 trilyun hingga Rp 2 trilyun. Kerugian itu di antaranya berasal dari sektor pariwisata Rp 264 miliar, sektor perbankan Rp 1,05 triliun, sektor hilangnya pekerjaan para pengungsi Rp 204,5 miliar, sektor pertanian, peternakan, kerajinan Rp

⁹ Made Antara & Made Sri Sumarniasih. "Role of Tourism in Economy of Bali and Indonesia", *Journal of Tourism and Hospitality Management*. Vol. 5, No. 2, pp. 34-44. December 2017.

100 miliar, serta sektor pertambangan dan pembangunan Rp 200-500 miliar. Kerugian ini belum memperhitungkan sektor pendidikan dan kesehatan yang juga terdampak langsung".¹⁰ ("The economic and social impacts caused during the Awas Gunung Agung status are quite large. The economic losses are estimated to be Rp 1.5 trillion to Rp 2 trillion. Among these losses come from the tourism sector Rp 264 billion, the banking sector Rp 1.05 trillion, the loss sector the work of the refugees Rp. 204.5 billion, the agriculture, livestock, handicraft sectors Rp. 100 billion, and the mining and development sector Rp. 200-500 billion. This loss does not take into account the education and health sectors which are also directly affected ".)

Social impact for the community is that there are many refugees, destruction of agricultural land and death of livestock as a source of community income. Due to the numerous of refugees and unemployment, the Government must allocate a budget to meet the basic logistics needs, especially food and health care needs for the displaced community.

2. Physical Damage

Bali Province as a leading tourism destination in Indonesia, the government has carried out good infrastructure development to remote areas so that potential areas visited by tourists are easily accessible. Mainly is the network of roads, hotels, restaurants, security of arts and cultural facilities and other supporting facilities.

¹⁰ I Nyoman Wage. "Upaya Pemerintah Hdapi Erupsi Gunung Agung", Sinar Agung Edisi Tahun 2017.

Figure 4-2 : Residents watching cold lava flood that hit Sungai Yeh river at Rendang, Karang Asem region on 30 November 2017



Source : Tribun bali.com (Online) available at [https://bali.tribunnews.com/2017/12/01/pasebaya-laporkan-6-dampak-abu vulkanik-gunung-agung](https://bali.tribunnews.com/2017/12/01/pasebaya-laporkan-6-dampak-abu-vulkanik-gunung-agung), 1 Desember 2017 pukul: 18.30 Wit.

Even though the Mount Agung erupted in 2017, the physical damage to the facility was not severe, because infrastructure development was adjusted to the conditions of the area affected by the eruption. But the most difficult are infrastructure, housing, community agriculture and religious locations that concern people's lives, which are most affected by the eruption of Mount Agung.

What is seriously affected is the occurrence of natural and environmental damage due to hot clouds, volcanic ash, hot and cold lava. Damage to nature and the environment includes damage to rivers, bridges, roads in settlements, protected forests, community farms and part of community agricultural land.

Conclusion

Based on many weaknesses when implementing the natural disaster management of the Aceh earthquake and tsunami in late 2004, the government has established law number 24 / 2007 on disaster management to anticipate future disasters. When carrying out Mount Agung eruption in Bali, which is guided by that law is considered there is a problem. In Law No. 24/2007 on disaster management does not explicitly mention the important role of the Indonesian Armed Forces as a vital part in disaster management and how it relates to the Indonesian National Board for Disaster Management (BNPB), even though every natural disaster in Indonesia the Indonesian Armed Forces is always in the frontline and very dominant position. its role, as well as the Rescue And Search Agency (SAR), and other Institutions.

Law No. 34 / 2004 on the Indonesian Armed Forces has given a reference to that institution in doing both military operation and military operation other than war. Experience in disaster management on mount Agung eruption in Bali showed that quick response is needed. But, on law number 34 / 2004 article number 7 stated that to do the task must have a political decision by the government (law), so There must be established another law to make that happen.

Under normal conditions the National Board for Disaster Management and Local Board for Disaster Management have held and have SOPs on how communication is carried out. In an emergency response the communication intensity is increased in both voices and data by utilizing existing facilities. But if the area affected by disaster expands and destroy some facilities then problem communications arise, couple with weather and terrain barrier. Than the communication problem will

arise. Experience shows that portable radio communication is more reliably used, until the infrastructures can be used again. Hence, there needs to be good coordination between the local government and the local military in the procurement of communication equipment for Local Board for Disaster Management.

The preparedness of the capabilities of both the regional government and the military has been carried out optimally, starting from planning, technical training to command post training. However, joint training between the local government of Karang Asem Regency and Karang Asem District Military Command has not been conducted, even though the task of disaster management must be done together to meet good results. The local government needs to plan it and allocate a budget for joint training because this is the responsibility and obligation of the local government approved by the law.

The organization for organizing disaster management is permanently in law number 24 / 2007 on disaster management. In practice there is significant role for Non-Government Organization (NGO), however, related to the role of local NGO and institutions, other volunteers, it has not been regulated in the Disaster Management Law. This can be seen from the cases in the field showing that NGO or non-government organizations are often not synergistic in disaster management. Meanwhile local Government established regulation on Local Board of Disaster Management (Badan Penanggulangan Bencana Daerah / BPBD). The involvement military in disaster management especially during emergency response has not stated yet, therefore, in the regional head regulation should be stated explicitly regarding the involvement of military units, coordination can be done long before there

is a disaster and the organization will be more effective. Based on law number 24 / 2007 issued by the Ministry of Social Affairs, it is stated that each local government must form a Disaster Preparedness Cadet Team (Taruna Siga Bencana/TAGANA). TAGANA is a social volunteer and social welfare worker who comes from the community and has concern and is active in disaster protection in the field of social protection. TAGANA has the task of carrying out disaster management, starting from pre-disaster, during emergency response, and post-disaster, and other social problems handling tasks related to disaster management. Each local government must coordinate TAGANA who can be used whenever disaster occurred. Karang Asem Regency Government has already form that team and involved it in disaster management on mount Agung eruption 2017. Regarding the military units which are deployed in Bali Province, although, the regional military unit covers the entire territory of the island of Bali, there are still limitations because the main task of the main military unit is as a defense force, while the task of disaster relief humanitarian assistance in the form of assistance to the civilian government. Some of the limitations include equipment, professional staff and budget constraints. but for the factors of readiness, responsiveness and speed of the title if at any time needed at any time can be moved in a relatively short time this can be fulfilled because the regional military unit has contingency plans that are annually evaluated and exercises are carried out gradually and continuously.

Immediately after the governor of Bali Province, Lieutenant General Police (Ret) I Made Mangku Pastika conducted an assessment determining the status of the disaster and who will be take out command and control, asked the Kodam IX / Udayana Commander for the

Karangasem Kodim Commander Lieutenant Colonel Inf Beny Rahardian acted as the Incident Commander to take control, coordinate and order the disaster emergency response organization to carry out his assignment.

Chapter 5

Conclusion and Recommendation

Conclusion

Based on the description in the earlier chapters, we can see a number of important conclusions as follows:

1. Pre-incident / preparedness problem. Before Mount Agung erupted, the local government was given early warning information by the Center for Volcanology and Geological Disaster Mitigation (Pusat Vulkanologi dan Mitigasi Bencana Geologi / PVMBG), the local government soon coordinated with all stakeholders including the Bali Military Commander. Since Mount Agung erupted, the Governor of Bali immediately asked Bali Military Commander (Panglima Kodam IX / Udayana) to appoint Karang Asem Military District. The Kodam IX / Udayana Commander agreed, even if referring to law number 34 / 2004 on The Indonesian Armed Forces, it could be too late to provide aid because of the absence of derivative law as mentioned in the article. To solve this problem local governments can issue local regulations that regulate the synergy of all related elements at all stages of disaster management. This synergy must be trained periodically so that we really understand each other's duties when a natural disaster occurs.

2. Legal gap among disaster managemet. There are two laws that cause confusion in implementing disaster management as follows: First, Law No. 24 / 2007 on disaster management does not explicitly mention the important role of the Indonesian Armed Forces as a vital part

in disaster management and how it relates to the Indonesian National Board for Disaster Management (BNPB), even though every natural disaster in Indonesia the Indonesian Armed Forces is always in the frontline and very dominant place. its role, as well as the Rescue And Search Agency (SAR), and other Institutions. Second, law number 34 / 2004 article number 7 on point c stated that to do the task must have a political decision by the government (law), so There must be established another law as a derivative law to make it happen. For a quicker solution the President of Republic Indonesia issues a Presidential Regulation as a derivative of Law no 34 / 2004 and 24 / 2007 which regulates the implementation of the involvement of the Indonesian Armed Forces in disaster management, This presidential regulation also regulates its derivatives at the regional level.

3. Coordination gap in disaster management. There is a coordination gap in province and district level. The Governor of Bali Province has issued Governor Regulation No. 29 / 2009 on Bali Province of Local Board for Disaster Management and Karangasem Region also issued Bupati Regulation No. 37 / 2009 on Karangasem Region of Local Board for Disaster Management. But on the regulation is not clear enough stated what the responsible of military (Incident Commander) is, what resources that can be used for, and to whom coordination must be carried out. So from the time of pre-disaster or the preparatory stage as if there was no connection between the regional military unit and the local government, coordination had only been seen since entering the disaster emergency response where the regional commander was appointed as an Incident Commander by the Governor or Regent. Therefore in the regional head regulation should be stated explicitly regarding the

involvement of military units, coordination can be done long before there is a disaster and the organization will be more effective.

Recommendations

There are several initiatives that can be taken into action to enhance well coordination between Bali local government and territorial military command on disaster management. The recommendations are as follows :

1. The central government and the house of legislative should revise the law number 24 / 2007 on disaster management by adding an article on how the military is involved in each stage of disaster management to make coordination and cooperation with local government easily taken.

2. The central government (the ministry of defense), and the house of legislative should revise law number 34 / 2004 on Indonesian Armed Forces particularly articles number 7 point c which accommodates the role of the Indonesian Armed Forces to conduct disaster management and humanitarian assistance, and to avoid doubts the leadership makes a decision.

3. The local governments of Bali Province and Karangasem Regency must have a local plan to protect its citizens from natural disasters. Governor and Regent must take the initiative to revise the local regulation on local board of disaster management, to coordinate and cooperate with the territory military command (Kodam IX / Udayana) with the main task of protecting all citizens, preparing integrated contingency plans, and joint training.

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Military Course : Army Air Defense Officer Advance Course,
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: Indonesian Air Force Command & Staff
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: Indonesian Armed Forces Command & Staff
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163 / WSA

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