Description of the dynamics of the resilience of people victims of the 2018 North Lombok earthquake

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Abstract. Before the earthquake struck lombok island on July 26, 2018, with a magnitude of 6.4 SR and on August 5, 2018 with a magnitude of 7.0 SR, it turned out that the history of earthquakes in Lombok had occurred 7 times from 1856 to 2013 with different strengths. So it can be concluded that lombok island is classified as a disaster prone area. Earthquakes include geological disasters that leave major impacts on lives, economies, infrastructure, the environment as well as psychological impacts. This research aims to describe the dynamics of the resilience of the victims of the 2018 North Lombok earthquake. This research aims to describe the dynamics of the resilience of the victims of the 2018 North Lombok earthquake. This article was compiled using two sections using literature studies and empirical research with a qualitative approach through in-depth interview motode. The results showed that the dynamics of resilience formation in earthquake victims had a profound effect on the success of synergy holistically both individual strength factors in mitigation implementation, family support factors and community factors both in a broad and narrow environment. The aspects of resilience in lombok society are the dominant aspects of optimism, empathy, self-efficacy and reaching out.

1. Introduction
The territory of the Republic of Indonesia is a disaster-prone area. In accordance with Law No. 24/2007 at least Indonesia has 12 types of high-risk disaster threats. Be it in geological disaster groups (earthquakes, tsunamis, volcanoes, landslide movements), hydrometeorological disasters (floods, flash floods, extreme weather droughts, extreme waves, forest fires, and land), and anthropogenic disasters (epidemic disease outbreaks and failed industrial accident technologies). The cause of natural disasters in Indonesia is due to Indonesia's geographical position flanked by two large oceans. Indonesia's geological position at the meeting of the world's three main plates (Indo-Australia, Eurasia, and pacific). As well as being included in the Pacific Ring of Fire volcano. The condition generally has many active faults and often causes earthquakes. This contributes to nearly 90% of earthquakes and almost all of them are major earthquakes in the world. From the period 2005 to 2015 more than 78% (11,648) catastrophic events were hydrometeorological disasters and only about 22% (3,810) were geological disasters. Although the number of disasters caused by geological factors is not significant but has an impact on the death toll and the greater economy (BNPB, 2014) [1].

The recent Lombok earthquake on July 29, 2018 with a magnitude of 6.4 SR was followed by a more devastating earthquake on August 5, 2018 with a strength of 7.0 SR as one example of a geological disaster that left a major impact on the death toll, economy, infrastructure, environment and psychological impact. According to the National Earthquake Study Center Team (2018) that two
major earthquakes occurred in Lombok in just one week, sourced from the same area of target. Occurs because one field of defense with a slope of 30 degrees moves 2-3 Meters. The location of the fault or fault is about 1 KM off the coast of North Lombok. BMKG analysis showed that this earthquake was a shallow earthquake caused by a sesar riding the arc behind Flores while the epicenter was located at coordinates 8.28 LS and 115.99 BT. Precisely located in the sea at a distance of 20 KM Northwest of North Lombok, at a depth of 10 KM. According to bmkg records tectonic lombok is indeed an active seismic area. Lombok is potentially shaken by earthquakes from the South and North. To the South there is an Indo-Australian plate subduction zone, while from the North there is a geological structure rising up Flores.

The geological conditions and geographical location of North Lombok Regency have different levels of vulnerability. This is evidenced in research conducted in three sub-districts in Pemenang, Tanjung and Ganges sub-districts of North Lombok Regency. The research used micrometro data based on the HVSR (Horizontal to vertical Spectrum Ratio) method to obtain GSS (Group Support System) and earthquake intensity values. The results of his research obtained the distribution of GSS scores that stated the highest level of inewanan in Pemenang Sub-district, while in Tanjung sub-district has the lowest level. As for the intensity level of the earthquake is on a scale iii up to VI MMI (Modified Mercalli Intensity) (Ningsih et al., 2019) [3].

Before the earthquake hit lombok island on July 26, 2018. In fact, the history of earthquakes records that the island has often experienced destructive earthquakes. Namely on July 25, 1856 and April 10, 1978 on a scale of 6.7 SR. On 21 May 1979 a scale of 5.7 SR, on 20 October 1979 a scale of 6.0 SR, on 30 May 1979 and on 1 January 2000 a scale of 6.1 SR, on 22 June 2013 a scale of 5.4 SR. So it can be concluded that lombok island is prone to disaster. The earthquake that occurred in August 2018 was destructive, came suddenly and in a short time was able to damage various facilities and infrastructure, infrastructure, housing, and take the lives of both the injured and the dead. In the event of lombok earthquake 2018 recorded total damage estimated losses of 7.7 trillion including 73,843 damaged homes, education facilities 671 units, bridges damaged 6 units, health facilities 52 units, worship facilities 128 units, offices 25 units and 515 people died, injured 7,145 people, and refugees 431,416 people died [4].

The potential threat of natural disasters such as earthquakes and tsunamis on the island of Lombok still exists due to the volcano Rinjani. As we know that lombok island is recorded as an earthquake prone area from 1856 to 2018 coupled with aftershocks that occur many times. For that, everyone must understand how to save themselves in the event of an earthquake or other natural disaster. Of course, the common hope of such a thing does not happen again even if it happens but the public knows how to deal with disaster emergencies. Risks are studied in order to mitigate. Mitigation that is able to lead to development. The effect of this disaster is more on mitigation failures. So it is considered the need to provide information about the knowledge of handling that can be used as a recommendation for disaster mitigation in Lombok. The success of the mitigation program will have an impact on improving the resilience of earthquake victims and being able to reduce the risk of disasters. The people will be resilient to disasters not separated from the role of factors that affect resilience itself. The factors that affect resilience are factors in themselves, community synergy (policy determinants of both central, local and rural governments), outside factors such as strengthening mitigation education and the role of knowledge observers about disasters.

2. Method
This article was compiled using two sections using literature and empirical research. In literature studies researchers collect library data, read and record various information from various sources both from textbooks, research report results, articles, internet, journals and index documents from related agencies. While in empirical research, researchers used a qualitative approach. Researchers excavated information from the field using in-depth interview methods to several informants who were considered to have reliable information about him and the people of North Lombok who were victims of the earthquake.
3. Results and Discussions

3.1 Research contribution to the Lombok earthquake

After the Lombok earthquake which occurred on 5 August 2018 attracted the attention of disaster observers at the regional, national and international levels. No less important is the role of academics, social communities, health agencies (association of doctors, nurses and midwives) to the role of individuals who take part in contributing according to their respective expertise. This is done as a form of caring for others, a form of solidarity of human beings and a sense of own and responsibility towards others. The research conducted by academics and disaster observers is a reference for the people of Lombok in particular and the wider community in general know the impact in the event of a disaster, the post-disaster impact, what risks will be faced, as well as what form of solution or mitigation should be planned in the future to the stage of rehabilitation and reconstruction.

The discovery of the impact of mental trauma experienced by children becomes the impact of the disaster itself. The mental impact is greater than the physical impact. Children lose their parents, lose their education, friends, relatives, lose fun, lose their environment and community (Suryatiningsih, 2018) [5]. The different symptoms of trauma in the reality faced by humans need to be handled wisely by experts or society as a whole. Therefore, with the detection of the initial symptoms of a traumatic event, it will facilitate in the efforts of providing assistance (counseling) properly and continuously. One solution given the efforts of psychosocial application in the form of fun-educational games and games is needed to help the mental recovery of children (Tanjung, 2018) [6]. As for the general public trauma healing with the approach of Islamic da'wah. Trauma healing program with Islamic da'wah approach is able to raise awareness of good religious practice so that it has the spirit to bounce back in living its life (Sa'i & Acim, 2018) [7].

It is not just the psychological mental problems of the child as a result of this catastrophic event. Results showed victims experienced neurosis symptoms (85.2%), psychotic symptoms (25.9%), PTSD symptoms (64.7%) and did not experience the risk of mental health disorders of 13 people (Dwidiyanti et al., 2018) [8]. Other risk assessments are medical facilities and infrastructure to deal with earthquake victims hampered because access to earthquake areas is damaged. so that ground transportation access is not optimally operated. The solution to that, medical volunteers with the community of emergency hospitals, sparked the idea of Ksatria Airlangga Floating Hospital (RSTKA). RSTKA is a pinisi ship with surgical room facilities, and a treatment room. The earthquake was not accompanied by a tsunami, so the pier is still worth leaning on. The research aims to analyze patient data in RSTKA, as well as as an evaluation and is expected to be a model of field hospitals (Airlangga et al., 2019) [9].

As presented in the introduction the trigger for the earthquake disaster is the geological and demographic form of lombok island itself. Research from the Bandung Institute of Technology's Global Geophysical Expertise Group, together with the Earth Observatory of Singapore (EOS) and the Bureau of Meteorology and Geophysics (BMKG), studied in more detail about earthquake shock patterns in Lombok, West Nusa Tenggara. One way is to record aftershocks that occurred by installing 13 seismograph units in North Lombok, West, East, Central, and Mataram City for three months, from August 3 to October 20, 2018. Similar research obtained microzoning maps of earthquakes in Medana and Jenggala Villages, Tanjung District, North Lombok Regency. Based on GSS (Ground Shear Strain) values and earthquake intensity on an MMI (Modified Mercalli Intensity) scale. Microtremor data is analyzed using the HVSR (Horizontal to Vertical Spectral Ratio) method to obtain the dominant frequency value and amplification factor at each measurement point, from the value used as the initial data to obtain the dominant period value, seismic vulnerability index (Kg), maximum ground vibration acceleration using kanai method, GSS value and Earthquake intensity obtained using Wald method (Ningsih et al., 2019) [3].

This is used to predict whether there is a possibility of aftershocks that include tsunamis. The effect of landslides accompanied by the eruption of Mount Rinjani was greatly avoided. There are some researchers such as Kusdia et al., (2013) who took part in researching geomagnetic signals in Lombok.
region using Kupang Observatory (KPG), Kakadu (KDU), Guam (GUA) with fractal method to determine anomalies that can be precursor in the event of earthquake in 2013. The earthquake has caused landslides and landslides in several places around Mount Rinjani. The earthquake that accompanied the tsunami wave that has edested tens of thousands of lives in Aceh is the earthquake with the highest number of casualties in the last 45 years. The largest earthquake ever occurred in Peru, in 1970 with a death toll of 120,000 (Kusdia et al., 2013) [11].

The concern of Lombok people about the earthquake and tsunami with much greater strength will make it difficult for the people to bounce back immediately after the great earthquake that has occurred on Lombok Island. The tsunami event in the southern Lunyuk Sumbawa area in 1979 as a trigger for the concern of the people of Lombok island because it impacted the southern areas of Lombok Island namely the Tanjung Luar bay area in Keruak Sub-district and the Teluk Awang area in Central Lombok. Therefore, socialization efforts are needed that will make the public more aware of the risk of disasters in the event of a natural disaster and also reduce excessive concern due to a lack of understanding of disaster problems. Therefore, it is necessary to solve this problem, through socialization about disaster mitigation. The results of this socialization have made people understand about the risk of disaster, how to deal with it and eliminate excessive concerns. Hope with socialization and strengthening mitigation will make Lombok community resilient against the pressures faced. Resilience is essential for post-earthquake rehabilitation and reconstruction.

3.2 Community-based synergies

Research that has been done from various parties is expected to help in disaster risk mitigation efforts in the future, especially related to earthquake problems. An important study is to continue, although sometimes researchers acknowledge the constraints on the situation and the condition of the limitations of existing human resources and the amount of cost budget required in the study. Literacy on disaster risk mitigation must be continuously improved in order to convey well to the community. The role of local government is indispensable to the program. Moreover, when referring to law number 24 of 2007, the authority, policies, and evacuation orders in the event of a disaster are in the local government not at the authority of BMKG. The role of the school is also very influential in the success of disaster mitigation. The role of schools in disaster risk reduction efforts through the education sector is an important part of efforts to improve children's resilience to disasters. The child will later become a change agent who can teach his community to form a culture ready for disaster (Rahma, 2018) [12].

In order to implement the mandate of Law No. 24 of 2007 on Disaster Management (Law No. 24/2007), especially Article 36, the Government through BNPB prepared the document of disaster management plan (RENAS PB) 2015-2019. This RENAS PB document is compiled based on achievements, challenges and opportunities in implementing disaster management in 2010-2014. Based on rpjmn evaluation results 2010-2014, review and evaluation of RENAS PB 2010-2014 and National Disaster Risk Reduction Action Plan (RAN PRB) 2010-2012, then in general the achievements that have been made in disaster management efforts 2010-2014 are regulatory and institutional frameworks, disaster risk assessment and early warning determination, SCIENCE TO build a safe culture, fundamental risk reduction, and preparedness strengthening [1].

The implementation of the program and the results of policies that have been established as disaster response solutions must be synergized and synchronized with other government agencies and non-governmental institutions. Ministries and institutions jointly and individually run programs that have been planned to strengthen community capacity. Once again the role of local government is important. BMKG, BNPB and BPBD are always ready when involved in any disaster risk reduction efforts. So that the community will have the encouragement from inside and outside to immediately rise to the next stage of progress.
3.3 Socialization and strengthening of disaster mitigation implementation
Mitigation is a series of efforts to reduce the risk of disaster, both through physical development and awareness and improvement of the ability to deal with disaster threats (article No. 21 of 2008 paragraph 6 PP on disaster management) (National Earthquake Study Center Team, 2018) [2]. Mitigation aims to reduce the impact, especially on the population. Mitigation is also a guideline for development planning and improving people's knowledge in dealing with and reducing disaster impacts or risks, so that people can live and work safely.

Some of the general disaster mitigation activities that the Government of North Lombok has conducted in the lombok earthquake study[2] are the first, the introduction and monitoring of disaster risk. Second, participatory disaster management planning and disaster aware cultural development. Third, the application of physical, nonphysical, and disaster management arrangements. Fourth, identification and recognition of the source of the danger or threat of disaster. Fifth, monitoring of natural resource management. As for recommendations for earthquake disaster mitigation can be divided into three stages. That is the stage before the earthquake, during the earthquake and after the earthquake. This knowledge is given in the hope that the public has knowledge and skills when dealing with all three stages of disaster. So that the public will know how to survive, reduce the risk and how to grow after the disaster.

Table 1. Earthquake disaster mitigation.

| Sebelum gempa | Saat gempa | Setelah gempa |
|---------------|------------|---------------|
| Mendirikan bangunan sesuai aturan baku (tahan gempa). | Tetaplah tenang dan | Cepat keluar dari bangunan. |
| Mengenali lokasi bangunan tempat tinggal. | Hindarilah sesuatu yang kemungkinan akan roboh, berlindung di bawah meja serta jauhi jendela kaca. | Gunakan tangga biasa hindari menggunakan lift. |
| Menempatkan prabotan pada tempat yang proposisional. | Perhatikan tempat berdiri, kemungkinan ada retakan tanah dan berusaha selalu bisa ke tanah lapang | Memeriksa sekitar jika ada yang terluka, lakukan pertolongan pertama. |
| Menyiapkan peralatan seperti senter, P3K, makanan instan, dll. | Ketika berada di dalam bangunan, segera evakuasi diri setelah gempa bumi berhenti. Saat keluar, perhatikan reruntuhan maupun benda-benda yang membebayan dan bisa jatuh menimpa diri pada saat evakuasi. | Hindari bangunan yang berpotensi roboh. |
| Memeriksa penggunaan listrik dan gas. | Ketika berada di dalam rumah, tetap berada di bawah meja yang dirasa kuat | |
| Mencatat nomor telepon penting. | Periksa keberadaan api dan listrik di sekitar yang berpotensi menyebabkan kebakaran. | |
| Mengenali jalur evakuasi. | Apabila di luar bangunan berupa tebing di sekelilingnya, hindari daerah yang rawan longsor. | |
| Mengikuti kegiatan simulasi mitigasi bencana gempa. | Jika berada di dalam mobil, hindari berhenti di bawah atau di atas jembatan atau rambu-rambu lalu lintas, tiang listrik, pohon serta jauhi pantai. | |
| Yaitu latihan penyelamatan. Seperti merunduk, perlindungan terhadap kepala, berpegangan ataupun dengan bersembunyi dibawa meja. | Jika berada di dalam mobil, hindari berhenti di bawah atau di atas jembatan atau rambu-rambu lalu lintas, tiang listrik, pohon serta jauhi pantai. | |

3.4 Resilience is formed in lombok earthquake victims
According to Reivich and Shatte in Dimascio (2018) Resilience is the capacity to respond healthily and productively when dealing with misery or trauma, which is necessary to manage the stresses of daily life. Resilience is the ability to bounce back from negative experiences that reflect the innate qualities of the individual or are the result of learning and experience. Resilience generally leads to positive adaptation patterns during or after facing difficulties or risks. Improving resilience is an important task because it can provide experience for humans in the face of life's challenges and difficulties.

There are seven aspects of resilience [13].

3.4.1 Regulation of emotions is the ability to remain calm under pressing conditions, be able to regulate emotions and maintain relationships with others and the environment.
3.4.2 Impulse Control i.e. the ability of the individual to control desires, urges of desire and pressure that arise from within. Individuals with low impulse control abilities will rapidly experience emotional changes when dealing with various stimulus from the environment. Individuals will tend to be reactive, display irritable behavior, lose patience, be impulsive, and be aggressive.

3.4.3 Optimism i.e. believing that they have the ability to overcome adversity that may occur in the future. It also reflects his self-efficacy, namely the belief that he is able to solve existing problems and control his life.

3.4.4 Causal Analysis i.e. the ability of individuals to accurately identify the cause of the problem at hand. Individuals who are unable to identify the exact cause of the problem will constantly make the same mistake.

3.4.5 Empathy i.e. the individual's ability to read the signs of other people's emotional and psychological condition.

3.4.6 Self-efficacy i.e. a belief that individuals are able to solve problems experienced and achieve success.

3.4.7 Achievements i.e. the ability to overcome adversity and rise from the deterioration and the ability to achieve the positive aspects of life after adversity.

The result of the in-depth interview looks at the dynamics of the resilience of the earthquake victims community with the special meaning and concept of the people of North Lombok itself. means that the concept of resilience that is formed in earthquake victims communities in North Lombok cannot be genic to earthquake victims elsewhere. It is likely that there will be similarities in some aspects. The dominant aspects seen to form resilience in the community of lombok earthquake victims 2018 consist of optimistic aspects, empathy, self-efficacy and apprelication. The people of North Lombok have been hit by earthquakes from 1979 to 2013 before the 2018 earthquake. But the people of North Lombok are always optimistic that they can afford to go through this difficulty. This is evidenced by the strength of good self-efficacy and empathy towards others both as survivors and not so as to achieve success starting the recovery stage, rehabilitation and to the further stage of reconstruction.

Table 2. Transcripts of interviews according to aspects of respect.

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|---------------------------------------------------------------|
|                                                                 |
| **Optimis** | **Empati** | **Efikasi diri** | **Pencapaian** |
|-------------|-------------|-----------------|----------------|
| pemuda-pemuda ini juga inisiatif mereka sendiri untuk saling membantu dalam membenahi memoto semua rumah-rumah warga. | Ada juga si yang peddal karena kita sama-sama merasakan kondisi seperti ini. Sama-sama kita luper. Jadi banyak yang memberikan barangnya dengan cuma-cuma. | Karena orang batuh tempat tinggal ini yang pertama. Batuh kepadian tidak jinjing lama, sehingga mereka semaksimal mungkin berusaha masing-masing. | Jadi keinginan yang cepat ingin kembali punya rumah, |
| Awal gempa ada seribu tenda yang tersebar. Ternyata dalam waktu sebulan terjadi penurunan yang drastis. Yang mereka tidak percaya masa’ yang awalnya ribuan jadi puluhan. | Ini nuliri kita saja bertanggung jawab untuk membantu sesama. | Ada yang rusak ringan, sedang dan ada yang rusak berat juga yang mengerukan rumahnya dengan biayanya sendiri. Karena terhalu lama menunggu dari pemerintah akhirnya dilakukan sendiri. | Pada saat terjadi gempa di tahun 2013, pernah terjadi gempa di tahun 2013 tapi tidak separah tahun ini. Yang pemukiman di atas gunung itu yang rusak tapi tidak separah yang saat ini. Tapi cepat pulihnya sama. |
| Pemerintah kita sangat-sangat mendukung sekali misalkan dalam konteks pelayanan itu kesat. Kedua, karena kita dari segi moral punya tanggung jawab untuk membangun kembali semangat warga ini supaya jangan terpuruk. Dari segi moral juga punya tanggung jawab supaya warga jangan terlalu kawat. | Sapaan tanpa pandang bula mereka selalu saling membantu. Meski banyak keluaraga. | Sebenarnya faktor kekuatan dari keluarga itu sendiri. Dorongan dari keluarga malah di tengah kebencanaan yang harusnya memikirkan diri sendiri dulu kan. Tapi gotong royongnya masih kuat. | Alhamdillah sudah membaik sudah normal semua ya, karena memang dari awal-awal banyak NJO yang datang dan sambungan-sambungan. |

While the factors that influence resilience are formed by individual factors, family factors and community factors. These three factors are the most dominant in the community of lombok earthquake victims 2018 which makes the victims quickly rise from the fall is the ability that individuals have
very well. Seen in cognitive, self-concept, self-esteem and social competence. The second is the important role of caring for each other and supporting each other's fellow earthquake victims so as not to make the people of Lombok earthquake victims too late in the deterioration. Finally, the community factor is the ability to synergize holistically in providing support both moral and material so that the people of North Lombok always do their best to move to make changes for the benefit and progress of the people of North Lombok. It is seen that indigenous stakeholders, religious leaders, local and village governments, communities and non-governmental agencies and institutions are taking part in the changes in order to realize the north Lombok community that is resilient to disaster. Good synergy has led to the success of mitigation programs that have been programmed by local governments. As well as the compliance of the people of North Lombok implement the mitigation program. So self-strength, strong encouragement from families and others who care for each other and holistic community support has led the people of North Lombok into a resilient society.

4 Conclusions
The resilience of earthquake victims' communities is able to be formed by the encouragement of holistic synergistic support factors namely self-strength, the strength of family support and the strength of community support whether it is in a narrow environment or a large environment.

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