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Regional Government Service Innovation Model in Disaster Mitigation

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Abstract: Indonesia has a geographical, geological, hydrological, and demographic situation prone to disasters with a relatively high frequency, thus requiring systematic, integrated, and coordinated disaster management. The disasters that occurred until 2020 were dominated by hydro-meteorological natural disasters such as floods, landslides, hurricanes, droughts to forests, and land fires (BNPB, 2021). The purpose of this study is to identify innovation models for regional government services in disaster mitigation. This study uses a qualitative descriptive method with data collection techniques, namely literature studies, FGDs, and interviews with related disaster mitigation innovations at the research location. The field findings illustrate that the SDIS innovation implemented by Sleman Regency is among the best innovations in handling volcanic eruptions. This innovation has been initiated since 2016 and continues to be refined. In the city of Semarang, specifically for flood disasters, the Early Warning System tool was installed at several points as the best innovation in flood management. However, difficulties were installing it at certain points due to geographical contours that were impossible. Meanwhile, for Sumedang Regency, their innovation through the SITABAH application still needs further development to become the best innovation in landslide mitigation due to limitations in infrastructure and human resources. In addition, the application is still one-way. Of the three disaster mitigation innovation models, the SDIS innovation is an innovation that has been successfully implemented by the Regional Disaster Management Agency of Sleman Regency. Especially on the "My distance and Merapi" feature, which can be accessed online, this innovation model can be replicated in other areas.

Keywords: innovation; disaster management; mitigation

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1. Introduction

Indonesia requires systematic, integrated, and coordinated disaster management as a region with geographical, geological, hydrological, and demographic conditions prone to disasters with a fairly high frequency. According to World Risk Report 2020 (Behlert et al., 2020), Indonesia has the highest level of disaster risk. This is due to the high level of exposure and vulnerability to disasters.

National Board for Disaster Management, as the focal point for disaster management in Indonesia, reports that during the period 1 January to 15 April 2021, 1,205 disasters have hit Indonesia (Zufrizal, 2021). The number of natural disasters in Indonesia in the last five years, from 2016 to 2020, can be seen in Figure 1 (Pusparisa, 2021).

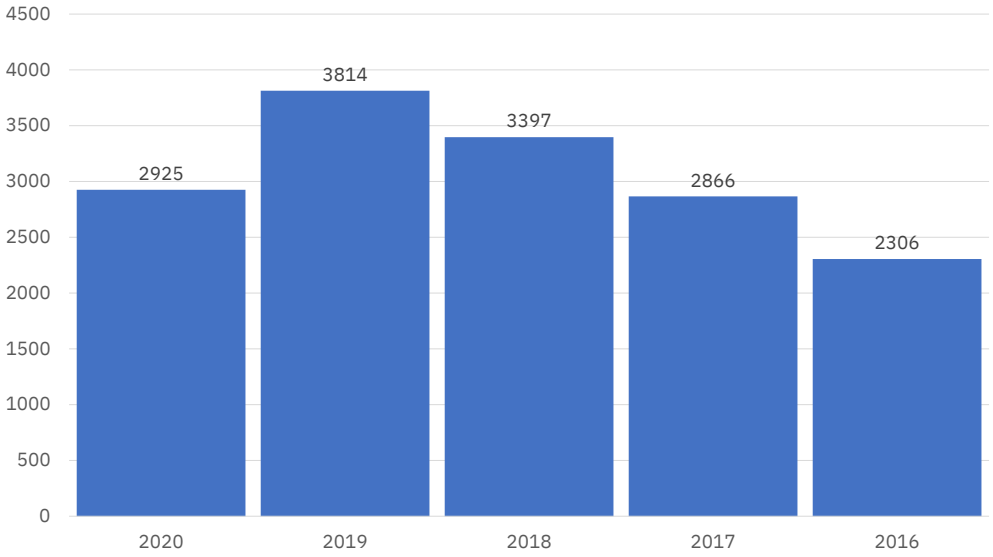

Figure 1. Total Natural Disasters in Indonesia

Source: National Board for Disaster Management (2021)

The disasters that occurred throughout 2018, 2019, and 2020 were dominated by hydro-meteorological disasters such as floods, landslides, hurricanes, droughts, and forest and land fires (Rikin, 2020). In addition, Indonesia, as an archipelagic country surrounded by a series of volcanoes, has the potential for danger which at any time can threaten the safety of the surrounding community if it erupts. Therefore, structured, systematic, and massive disaster mitigation is needed as preparedness for disasters.

According to Law No. 24 of 2007, the definition of mitigation is a series of efforts to reduce disaster risk, both through physical development and awareness and capacity building to face disaster threats. Mitigation is carried out to reduce the risks and impacts caused by disasters on communities in disaster-prone areas. In common terms, the notion of mitigation is reduction, prevention, or it can be said as a process of seeking various preventive actions to minimize the negative consequences of disasters that will occur.

According to Priambodo (2009, p. 25), there are 2 (two) crucial elements that form the basis for successful disaster mitigation, namely: (a) Microcosm, namely the development of public awareness, namely the mindset and pattern of life or norms in everyday life; and (b) Macrocosm, namely the development of a friendly environment for the life of the living creatures that live in it as well as for the environment itself.

However, in reality, several obstacles were found related to disaster management, including (1) lack of budget; (2) low quality of technology; (3) lack of disaster preparedness education; (4) lack of coordination between agencies; (5) neglected aspects of prevention; (6) the regional government's low priority towards disasters; (7)

low public awareness regarding disaster mitigation; and (8) weak disaster mitigation processes.

An important factor in disaster management is the budget. The disaster management budget is divided into three categories (BNPB, 2014): (1) Disaster contingency funds are provided in the state budget for preparedness activities at the pre-disaster stage; (2) Emergency Fund is provided in the state budget, which is placed in the National Board for Disaster Management for activities in the emergency phase. In addition, regional governments can provide ready-to-use funds from regional budgets. Emergency Fund must always be available according to need during emergency response, and (3) Social assistance funds in the form of grants are provided in the state budget for activities at the post-disaster stage. In the 2021 state budget, National Board for Disaster Management has a ceiling of Rp813.12 billion. As one of the categories of funds prepared for disaster management in 2021, the Natural Disaster Emergency Fund is only Rp1.3 trillion (Wandari, 2020).

In terms of equipment, much equipment is relied on for monitoring disasters, which is quite outdated. Indonesia is still experiencing a shortage of seismometers or earthquake detectors. Even though this early warning system is crucial in disaster mitigation (Khafifah, 2018). So far, the government's steps towards disasters have also been more of a disaster response than prevention, resulting in the aid being only sporadic and not well-targeted. (Kompas.com, 2009). According to Bakti (2020), the absence of a party responsible for the implementation of disaster management is because the Regional Disaster Management Agency does not form a disaster management field team, so that mitigation activities are not effective and efficient.

Therefore, this problem causes when a disaster suddenly appears in several areas in Indonesia. The Regional Disaster Management Agency's apparatus seems to be inattentive to minimizing the impact of the disaster. For the future, between Regional Disaster Management Agencies, both those that cross the district/city and provincial boundaries, they must be alert by collaborating among Regional Governments. From the collaboration between Regional Disaster Management Agency, it is hoped to minimize the impact of natural disasters.

Post-disaster management focuses on rehabilitation and reconstruction, while prevention aspects are often neglected. As a result, losses due to disasters that should have been prevented are often repeated. This condition is accompanied by many regencies/cities that have not included the budget for adaptation and disaster mitigation into their Regional Medium-Term Development Plans (RMTDP). As a result, the average regional disaster management budget is only 0.02%-0.07% of the Regional Budget.

On the community side, their lack of knowledge on disaster mitigation is very influential, for example, in the case of the eruption of Mount Agung, where many residents piled up in the refugee area. This is because residents who are in the safe zone also evacuate. This condition also shows that the early warning system is not working well.

Regional governments have made various efforts in disaster management, for example, the formation of communities such as the Regional Mutual Assistance and Empowerment Program (Oswaronto et al., 2020), Disaster Preparedness Brigade (BSB) (Mansur et al., 2020), and Disaster Resilient Communities (Budiarti et al., 2017). In addition, infrastructure development that supports disaster management has also been carried out, including constructing reservoirs, reforestation (Nasyiruddin et al., 2015), dike repair, and bamboo planting in the Riparian zone and rivers (Budiarti et al., 2017). Not only that, an application for disaster management has also been created, namely the Landslide Disaster Information System (known as "SI BENAR") (Riyalda et al., 2018).

We can see and learn from disaster service innovation studies from natural disasters that hit Indonesia, for example, disasters from the floods that occurred in South Kalimantan, the Mamuju-Majene earthquakes, to the eruption of Mount Semeru

in East Java, it is necessary to take steps that the Indonesian people in disaster mitigation must consider.

Seeing the climatic conditions in Indonesia, there may be floods every year and, of course, will face the losses caused by these disasters. Therefore, to reduce flood disasters, steps can be taken, including (a) monitoring of land use and site planning to place vital facilities that are vulnerable to flooding in safe areas; (b) adjustment of building design in flood-prone areas to be able to survive and be made multi-story; (c) infrastructure development is made watertight; (d) construction of barriers, embankments, and walls need to be made along rivers and seas; (e) Cleaning of sediments and construction of drainage channels; (f) keep the environment clean by disposing of garbage in its place; (g) increased vigilance in highland areas and (h) training on flood awareness.

Indonesia's geographic location is at the confluence of three large tectonic plates to cause unavoidable earthquakes. Therefore, we all need to strive for earthquake disaster reduction, including through the following steps: (a) buildings must be constructed with vibration/earthquake-resistant construction and follow building quality standards, and (b) planning the placement of settlements to reduce the density of dwellings in disaster-prone areas.

Indonesia is a country surrounded by several active volcanoes. If we live in an area that is in an active volcano area, then we need to be vigilant and need to know how to anticipate disasters so as not to cause a lot of losses. As for the efforts to reduce volcanic disasters, among others are carried out through (a) planning the location of land use for important activities and the location must be far from or outside of disaster-prone areas; (b) avoiding places that have a tendency to flow lava or lahars; (c) application of building design needs to be made resistant to additional loads due to volcanic ash; (d) Creating permanent refugee camps, especially around volcanoes that frequently erupt; and (e) socialization of disaster mitigation to the community.

However, from the efforts mentioned above, it can be seen that so far, disaster management is still focused on individual regional governments. As a result, there is almost no cooperation between several regional governments who experience the same thing. Sadat (2019) stated that the regional government's attention to the joint disaster management model is still low due to the egoism of each region.

Another study that discusses this is conducted by Wilkin et al. (2019), who highlights the need to use social network mapping and analysis as an input in meeting needs and priorities within the framework of disaster risk reduction. However, according to Chan et al. (2020), physical materials, as well as handling evacuation and emergencies during the disaster until after the disaster, is also very necessary. However, there is also a greater emphasis on the importance of field considerations for a disaster information system. Because the information system built is not accompanied by a user-friendly solution, the results obtained will not be optimal (Song et al., 2019).

The studies mentioned above are sufficient to describe how to reduce the risk of natural disasters, volcanic eruptions, earthquakes and floods, and landslides. What is especially important is the need for collaboration between the central government and regional governments (both provincial and district/city) and must also involve private communities, both foreign and domestic, which sometimes already have a network that is ready to face the three disasters mentioned above.

Implementatively, it can be explained that specifically, the three disasters that are the focus of this study, namely: volcanic eruptions, floods, and earthquakes, are the focus of this study. This is because the regional government where this study was conducted, namely: the Sumedang Regency Government, the Sleman Regency Government, and the Semarang City Government, have made significant innovations in mitigating earthquakes, floods/landslides, and volcanic eruptions related to their handling so that they can be used as examples/replication for other regions in Indonesia. Indeed, compared to other countries, it is still far behind in mitigating natural disasters. For example, Japan can mitigate natural disasters related to

earthquakes, volcanic eruptions, and tsunamis. South Korea can be used as an example in dealing with the mitigation of landslide natural disasters. And the Netherlands can be used as an example in dealing with natural flood disasters.

The State Government and Regional Government should indeed follow the "best practice" that has been put forward if at any time a natural disaster occurs and will handle and practice natural disaster mitigation. Thus, it is hoped that this study seeks to examine the service innovation model that the Regional Government has carried out in disaster mitigation.

2. Methods

This study was conducted for one month, from March to April 2021. The study locations include Sumedang Regency, Semarang City, and Sleman Regency. The reason for choosing the location is because the three locations have experienced natural disasters, namely floods, landslides, and volcanic eruptions. The approach used in this study was a qualitative approach with descriptive analysis (Creswell & Creswell, 2018). This study obtained data through interviews with informants from the Regional Disaster Management Agency in the three locations. In addition, data was also obtained by holding a Focus Group Discussion (FGD) attended by representatives from the National Board for Disaster Management, the Directorate General of Administrative and Regional Development of the Ministry of Home Affairs, and Regional Disaster Management from several regions. Not only that but data was also obtained from library searches related to disasters and regional innovations. The data also includes data accessed from the regional innovation index application managed by the Center for Research and Innovation Development of the Ministry of Home Affairs. The analysis technique used is a qualitative technique by going through 3 (three) stages, namely reduction of data findings, data presentation, and drawing conclusions and verification (Hariyanti, 2015). The initial stage is to reduce data from the study location. Such as what disasters have been experienced in the three locations and how they have overcome or prevented these disasters. However, the data that is then presented is not all the data obtained but the reduction results from all the data that has been collected. After the relevant data is presented, the next step is to conclude from the data that has been presented and then re-verify with the informants through virtual meetings.

3. Results and Discussion

3.1. Disaster Mitigation Innovation of Regional Government

The application of Minimum Service Standards, as previously mentioned, provides room for innovation in its achievements as long as it still refers to the service quality of each sub-activity that has been determined. Innovation space is prepared so that regions can adjust the implementation of Minimum Service Standards to the conditions and characteristics of each region. Innovation is carried out by utilizing local wisdom, technological trends, and socio-economic trends. In line with that, the Head of the National Board for Disaster Management stated that innovation and breakthroughs were needed to reduce the impact of disasters to a minimum (Bardono, 2018).

Every innovation must be a new idea or idea that has never been disclosed or published before (Sujatna, 2020). Likewise, with the form of renewal carried out in the regional government administration or called regional innovation following Government Regulation 38 of 2017.

3.1.1.Landslide Disaster Mitigation Innovation in Sumedang Regency

Sumedang Regency is an area that has the potential for landslide hazards with a moderate to high category. InaRISK is a risk assessment portal that uses an ArcGIS server as data services that describe the scope of the disaster threat area, affected

population, potential physical loss (Rp), potential economic loss (Rp), and potential environmental damage (ha) and is integrated with the realization of the implementation of disaster risk reduction as a monitoring tool for disaster risk index reduction. Based on the results of the InaRISK analysis in Sumedang Regency, there are 26 sub-districts with moderate to high potential hazards, while the area of potential hazard reaches 60,872 hectares. The disasters that often occur in Sumedang Regency are landslides, floods, and ground movement.

The Regional Disaster Management Agency of Sumedang Regency has taken various steps in disaster management (1). The Sumedang Regency Government issued the Sumedang Regency Regional Regulation No. 3 of 2017 concerning the Implementation of Disaster Management. Article 18 states that the Implementation of Disaster Management in situations where there is a potential for a Disaster to occur, as referred to in Article 8 letter b, includes: (a) Preparedness; (b) Early Warning; and (c) Disaster Mitigation; (2). Collaboration between stakeholders is an important factor in encouraging innovation (Soesanto, 2017). In this regard, The Regional Disaster Management Agency Sumedang has collaborated with the Center for Volcanology and Geological Hazard Mitigation to study related disasters that often occur in Sumedang. The disaster risk reduction forum, which was formed in collaboration between the Bandung Institute of Technology, Padjadjaran University, and the National Institute of Aeronautics and Space, provides disaster-related information, including information related to a 16 cm reduction in ground movement before the disaster occurred. The results of other studies show that ground movement is still in the slow category. If there is high intensity, it will be possible to quickly move the ground movement; (3) At the end of 2020, through the Meteorology, Climatology, and Geophysical Agency Operational Control, The Regional Disaster Management Agency Sumedang will be given access to weather-related updates which are updated every 2 hours. This weather-related information will be communicated to the public through social media; (4) The Sumedang Regency Government through the Information Communications, Encryption and Telematics Office (Diskominfosanditik) has launched a disaster and disaster information system application in January 2021. The application is called SITABAH (Systems, Information, Disaster Response, and Disasters).

The SITABAH application was created to find out disaster data and information. SITABAH recorded various names of victims and damage and donations from various elements of society, including the government, communities, mass organizations, and even individuals. The collected donations are managed transparently and can be known by the whole community through the SITABAH application. This application can be accessed at www.sumedangkab.go.id.

3.1.2.Flood Disaster Mitigation Innovation in Semarang City

The existence of potential disasters that occur in an area is obtained from the history of events and the possibility of a disaster occurring in an area. Analysis of potential disasters is carried out to determine the hazard index of each region. This analysis can also estimate the extent of the hazard that will occur in an area.

The hazard index assessment is grouped into low, medium, and high hazard classes. The low grade has an index value of 0 to 0.333, the medium grade has an index value of 0.334 to 0.666, and the high grade has an index value of 0.667-1. The index value class will also produce the area (ha) of hazard in an area. For example, the level of disaster hazards in Semarang City can be seen in the Table 1.

The Regional Disaster Management Agency of Semarang City has taken various steps in disaster management, namely: (a) Formation of Disaster Prepared Families. Currently, with the priority scale, as many as 58 Disaster Prepared Families have been formed, and until April 2021, this has increased to 64 Disaster Prepared Families; (b) Making disaster-prone maps and disaster threat maps; (c) Formation of Disaster Resilient Villages (KATANA), currently, 22 have been formed; and (d) Early Warning

Table 1. Disaster Hazard Level in Semarang City, 2020

No.	Hazard Type	Hazard Index	Hazard Level
1	Flood	0.68	HIGH
2	Drought	0.74	HIGH
3	Epidemics and Disease Outbreaks	0.55	MEDIUM
4	Extreme weather	0.78	HIGH
5	Landslide	0.67	HIGH
6	Extreme Waves and Abrasion	0.27	LOW
7	Technology Failure	0.32	LOW

Source: The Regional Disaster Management Agency of Semarang City (2020)

System (EWS) which is used in flood disaster management in several places in Semarang City.

This tool can monitor potential disasters in real-time (online) and access the public from electronic devices. In the post-disaster period, this tool can be used by the Semarang City Government to monitor flood and landslide situations. The tool, called SEMARISK, has sensors, alarms, CCTV, and mini weather (sensors for flooding), one of which is installed in the Flood Canal Watershed (DAS). Dasawisma Tangguh (DAWIS) who came from the Dawis community to monitor disasters.

The Information and Rehabilitation System (SIRERE) is a system built to facilitate the distribution of social assistance due to a disaster. The Regional Disaster Management Agency held the Disaster Mitigation Animation Innovation Competition in collaboration with one of the private universities in Semarang, namely: the University of Education Nuswantoro, which was held in 2019. The Disaster Mitigation Animation Innovation Competition is expected to produce works of children on mitigation disasters in Semarang.

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3.1.3.Volcanic Eruption Disaster Mitigation Innovations in Sleman Regency

Based on the 2020 Mount Merapi Eruption Contingency Plan Document, the Merapi Volcano Natural Disaster has occurred since 1768 and recorded more than 80 eruptions. It is predicted that a large eruption will occur once in 100 years (Newhall, 2000). This large eruption can be explosive, and the range of hot clouds is up to 15 KM.

To support the performance of the Regional Disaster Management Agency and to encourage collaboration between the Government and local stakeholders in disaster risk reduction activities in Sleman Regency, the Sleman Regional Disaster Management Agency has succeeded in developing innovations through the Sleman Disaster Information System which in the description of the innovation includes: (1) Motivation to provide information services and disaster management in a fast, precise, accurate, effective and efficient manner; (2) The initiator of this innovation is the head of the emergency and logistics division of the Sleman Regional Disaster Management

Agency and the Manager of the Sleman Disaster Management and Operations Control Center (PUSDALOPS.PB.SLEMAN) who are tasked with delivering early warnings that are fast, accurate, on target, to recipients of information, especially communities in Disaster-Prone Areas (KRB); and (3) the purpose of developing this innovation is in line with the development of the need for information technology that can be easily accessed and quickly and optimizes smart phone-based public communication media, so that threat situations that have the potential to cause emergencies can be informed quickly, accurately, precisely, effectively, and efficiently so that the risk of disaster can be minimized.

The SIPANDU Merapi application is an Android-based application that provides data and information regarding disasters. At the same time, the data that can be seen includes the user's distance from Merapi and the KRB radius, the nearest gathering point, evacuation routes that can be passed, and refugees.

Until now, the innovation is planned to be developed to improve disaster emergency information so that it can be integrated with daily emergency information, including health emergencies (SES 9000. Health Service), traffic accidents (PMI), fire incidents (Public Civil Service Police Unit) Fire Department), and tourist destinations on the slopes of Merapi (Tourism Department, Hotel and Restaurant Association).

3.2. Analysis of the Disaster Mitigation Service Innovation Model

A series of activities carried out to prevent, mitigate preparedness, emergency response, and recovery related to disaster events is called disaster management (Sudibyakto, 2011). Furthermore, Sudibyakto explained that the purpose of disaster management is to reduce losses and risks that may occur and speed up the recovery process after a disaster occurs. Disaster management consists of two stages: ex-ante (before the disaster) and ex-past (after the disaster). Ex-ante consists of mitigation, prevention, and preparedness. The ex-past stage is in the form of emergency response, rehabilitation, and reconstruction. Disaster management strategies can be in the form of technical or engineering or non-technical or statutory regulations.

Meanwhile, according to William Nick Carter in Widjaya (2008), natural disaster management (disaster management) needs to be carried out through the following stages: preparation, facing disaster, repairing the effects of damage (reconstruction), re-functioning damaged social infrastructure and facilities (rehabilitation), and taming natural movements that lead to disaster (mitigation).

Thus, in disaster management, stages are needed both before and after a disaster occurs. Sudibyakto divides the stages into two major ones, while Carter divides them into more detailed stages. Disaster mitigation innovation carried out by Sumedang Regency, Semarang City, and Sleman Regency refer to the Minimum Service Standards policy for disasters carried out by the regional government following the Regulation of the Minister of Home Affairs Number 101 of 2018.

The Minister of Home Affairs Regulation Number 101 of 2018 concerning Basic Service Technical Standards on Minimum Service Standards for District/City Regional Disaster Affairs. With this policy in place, SPM is mandatory, and regencies/ municipalities implement priority, at least providing services, including (1) preparation of disaster risk studies and (2) socialization, communication, disaster-prone information by type of disaster. These services are provided to citizens in disaster-prone areas and who are victims of disasters. In the same regulation, it is further explained about three types of minimum basic services in disaster management, namely (a) disaster-prone information services; (b) Disaster prevention and preparedness services; and (c) Rescue and evacuation services for disaster victims.

Disaster prevention and preparedness services are a series of pre-disaster activities through local governments and citizens' prevention, mitigation, and preparedness in dealing with disasters. One of the services carried out is the implementation of disaster preparedness rehearsals for citizens in the form of simulations and field rehearsals following the prepared Disaster Management Plan

and Contingency Plan. Disaster victim rescue and evacuation services are activities carried out immediately during a disaster incident to handle and save disaster victims. One of the services carried out is to provide search, rescue, and evacuation services for disaster victims. One of the services carried out is to provide search, rescue, and evacuation services for disaster victims.

According to Rogers and Roger (1983), innovation is "an idea, practice, or object perceived as new by the individual." In addition, innovation is also inseparable from several characteristics, including (a) New knowledge, namely an innovation that is present as new knowledge for the community in a certain social system. This knowledge is an important determinant of social changes in society; (b) new ways of innovation, which can also be a new way for individuals or groups to meet needs or answer certain problems. This new method is a replacement for the old way that was previously applicable; (c) The new object of innovation is a new object for its users, either physical (tangible) or intangible (intangible); (d) new technology innovation is very synonymous with technological progress—many examples of innovations that come from the results of technological advances. Indicators of the progress of an innovative technology product can usually be recognized immediately from the features attached to the product; (e) new inventions, and almost all innovations are the result of discoveries. There are very few cases of innovation appearing as a coincidence. Innovation is the product of a process that works completely consciously and deliberately (Noor, 2013).

According to Rogers and Roger (1983), The Sumedang Regency SITABAH application to mitigate landslides meets these aspects. The SITABAH application is a new method applied by the Sumedang regency in mitigating landslide disasters. Utilization, the use of the SITABAH application, replaces the old method, which is considered ineffective in the landslide disaster mitigation process. The SITABAH application is also the use of new technology to mitigate landslides in Sumedang.

The City of Semarang also uses new methods and technology in disaster mitigation through the Semarang Risk application (SEMARISK) for disaster reporting and monitoring. SEMARISK has been socialized and educated in schools. This innovation won the top 10 awards in the innovation competition in Semarang City. Disaster monitoring with SEMARISK innovation through the monitor screen at the Operational Control Center (PUSDALOPS) of the Regional Disaster Management Agency based on early detection tools.

Furthermore, in volcanic disaster mitigation by Sleman Regency through the Sipandu Merapi application, it has also fulfilled the characteristics of the innovation mentioned above. The Sipandu Merapi application also uses new methods and technologies in mitigating volcanic disasters in Indonesia. Therefore, its features also have a good impact on the mitigation activities carried out.

Based on the source, Hutauruk (2010) divides regional innovation into three innovation patterns, namely (1) Adoptive Innovation, (2) Instructive Innovation, and (3) Independent Innovation.

Adoptive innovation comes from a program that has previously been held and has received a good assessment or has succeeded in answering the existing problems by the government. Furthermore, the government can fully adopt the program as an innovation, either with the same name or with a different name (new name) but using the same method but with different sources and allocations of funding and the person in charge of different activities.

Instructive innovations are innovations carried out by local governments originating from Presidential Instructions, Presidential Decrees, Ministerial Decrees, and so on, which in principle come from central government policies. However, these programs are usually implemented based on the implementation instructions and standard technical guidelines made by the Central Government to be implemented in the regions.

This independent innovation is an innovative idea, idea, or breakthrough from stakeholders that is carried out based on needs, such as the need to solve problems

that exist in society. The innovations produced are adapted to existing environmental conditions and are measured by the capabilities of the local government.

Based on the understanding of the innovation pattern above, the disaster mitigation innovations in Sumedang Regency, Semarang City, and Sleman Regency can be said to be independent innovations. This is based on the birth of these innovations to answer disaster problems that often occur in the area. Innovation is based on disaster events that often occur in their respective areas. In addition, the financing for disaster mitigation innovations in the three regions comes from the regional budgets of each region.

Disaster-prone information services are provided in detail to citizens in disaster-prone areas and who are potentially exposed to disasters. One of the services carried out is to carry out socialization, communication, information, and education on disaster-prone areas, namely, to better understand the various disaster threats that exist in their area, how to reduce the hazards and vulnerabilities they have, and increase their capacity in the face the threat/impact of disasters. The disaster mitigation innovations that have been implemented in Sumedang Regency, Semarang City, and Sleman Regency in their respective regions, can be used as a reference (best practice) for other regions.

Table 2. Parameters of the Disaster Mitigation Innovation Model

No	Basic Service Type	Scope (Minister of Home Affairs Regulation 101 of 2018 concerning Minimum Service Standards, Sub-Disaster Affairs)	Indicator
1.	Disaster Information Service	a. Preparation of Disaster Risk Assessment b. Disaster-prone information and education communication	a. The legal basis for regional innovation b. Integration of regional planning documents for Disaster Management c. Availability of human resources for regional innovation d. Budget support e. IT Usage f. Innovation technical guidance g. Innovation actor involvement h. Technical guide i. Easy access to innovation j. Replication k. Development of Disaster Management Innovation l. Beneficiaries of disaster management innovation
2.	Disaster Prevention and Preparedness Services	a. Preparation of disaster management plan b. Contingency plan creation c. Prevention and mitigation training d. Simulation of disaster preparedness e. Operational control and provision of disaster preparedness infrastructure f. Equipment preparation	a. The legal basis for regional innovation b. Integration of regional disaster management planning documents c. The existence of human resources regarding regional innovation d. budget support e. IT usage f. Innovation technical guidance g. Innovation actor involvement h. Technical guide i. Easy access to innovation j. Replication k. Development of Disaster Management Innovation l. beneficiaries of disaster management innovation
3.	Rescue and Evacuation Services for Disaster Victims	a. Quick response to priority zoonotic disease outbreaks/outbreaks b. Quick response to disaster emergency	a. The legal basis for regional innovation b. Integration of regional planning documents for Disaster Management

4. Conclusion

Based on the results of the study, it can be concluded that disaster mitigation and innovation follow the characteristics of each region and the Minimum Service Standards that must be carried out by the region, including local government services, which are the locus of the study (flood disaster in Semarang City, landslide disaster in Sumedang Regency and the volcanic eruption disaster in Sleman Regency). It has

implemented the Minimum Service Standards (SPM) as regulated in the Minister of Home Affairs Regulation Number 101 of 2018 concerning the Minister of Home Affairs Regulation Number 101 of 2018 concerning Basic Service Technical Standards on Minimum Service Standards for District/Regency Regional Disaster Affairs Sub-District/ City.

In addition, the results of the study show that disaster mitigation innovations in Sumedang Regency (SITABAH), Semarang City (SEMARISK), and Sleman Regency (SIPANDU MERAPI) has fulfilled the characteristics of innovation by using new methods and technologies to respond to disaster mitigation problems in each region.

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