

Risk Analysis of Losses Suffered by the Community Around The Lubuk Minturun Bathing Area Caused by Flash Floods on November 27, 2025

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ABSTRACT

Flash floods are a common natural disaster in Indonesia, often triggered by extreme rainfall, deforestation, and other environmental factors. This study analyzes the risk of community losses due to the flash flood that occurred in Pemandian Lubuk Minturun, West Sumatra, on November 27, 2025. The disaster was caused by rainfall exceeding 200 mm per day, causing the Batang Kuranji River to overflow. The impacts include severe infrastructure damage, economic losses with livelihood losses ranging from 5-30 million rupiah per person, disrupted clean water supply, and psychological trauma to affected communities. This analysis aims to provide a comprehensive overview of the risks faced by the community, including material losses, economic disruption, and post-disaster psychological impacts. The results are expected to serve as a reference for post-disaster management and recovery efforts in the area and enhance community preparedness for future similar disasters. Flash floods are one of the natural disasters that often occur in Indonesia, particularly triggered by extreme rainfall, deforestation, and other environmental factors. This study analyzes the risk of community losses due to flash floods that occurred in Pemandian Lubuk Minturun, West Sumatra, on November 27, 2025. This disaster was caused by rainfall reaching more than 200 mm per day, which caused the Batang Kuranji River to overflow. The impacts included severe damage to infrastructure, economic losses with livelihoods lost ranging from 5 to 30 million rupiah per person, disruption of clean water supplies, and psychological impacts in the form of trauma for the affected communities. This analysis aims to provide a comprehensive picture of the risks faced by the community, including material losses, disruption of economic activities, and psychological impacts after the disaster. The results of the analysis are expected to serve as a reference in efforts to mitigate and recover from flash floods in the region and to increase community preparedness in facing similar disasters in the future.

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1. INTRODUCTION

The definition of disaster according to Law of the Republic of Indonesia Number 24 of 2007 is an event or series of events that threaten and disrupt the life and livelihood of the community caused by natural and/or non-natural factors or human factors, resulting in human casualties, environmental damage, property loss, and psychological impact. Another definition of disaster according to Fritz (1961) in Lindell (2013) is an event concentrated in space and time, in which a community or one of its subdivisions experiences physical damage and social disruption, thereby disrupting all or some of the important functions of the community or subdivision. The main factors that can cause disasters to result in casualties and significant losses are a lack of understanding of the characteristics of hazards, attitudes or behaviors that lead to the depletion of natural resources, a lack of early warning information that results in unpreparedness, and helplessness or inability to deal with disasters (BAKORNAS PB, 2007).

Article Type

Natural disasters are frequent occurrences that can cause damage and loss, even resulting in fatalities. One type of natural disaster that often occurs in Indonesia is flash flooding. The main triggers of flash flooding are extreme rainfall, deforestation, littering, and many other factors. According to BNPB (2012), flash floods are water flows with very high discharge, accompanied by natural materials such as mud, wood, rocks, and cause severe damage. According to Adi in (Kala, 2025), flash floods are hydrometeorological events that are always characterized by rapid water flow that comes suddenly and carries natural materials from upstream to downstream in a short time.

The province of West Sumatra is an area that is highly vulnerable to disasters, such as the flash flood that occurred at the Lubuk Minturun bathing area on November 27, 2025. This event occurred when extremely high rainfall reached more than 200 mm per day, causing the Batang Khuranji River to overflow and the water flow around the Lubuk Minturun bathing area to rise dramatically. As a result, there was severe damage (BMKG 2025). Many people living around the Lubuk Minturun bathing area suffered losses due to this disaster. Direct losses included damage to homes, loss of livelihoods, disruption to clean water supplies, traumatic experiences, and many other losses. Initial reports from the Lubuk Minturun community indicate that the loss of livelihoods ranged from 5 million to 30 million per person.

Based on these events, we need to analyze the risks of losses suffered by the community around the Lubuk Minturun bathing area as a result of flash floods. This article will discuss the losses suffered by the community as a result of these flash floods, including material losses, disruption to economic activities, and the psychological impact. This analysis is expected to provide a clear picture of the risks faced and serve as a reference for disaster management and post-disaster recovery.

2. METHOD, DATA, ANALYSIS

This study uses a literature review approach as its method. A literature review, often referred to as a bibliographic study, is a method of collecting data and information by searching through various written sources. These sources include scientific journals, reference books, encyclopedias, and various other reliable sources, both in print and digital form, that are related and relevant to the topic being studied (Sabrina, 2021). According to J. Supranto, quoted by Ruslan in his book *Research Methods in Public Relations and Communication*, a literature study is an activity of collecting research data or information by examining various written sources, such as scientific journals, reference books, and other published materials available in libraries (Ruslan 2008).

Based on the above explanation, it can be seen that the researcher used a literature study method as the main approach, which involved collecting data and information by reviewing various written sources such as scientific journals, reference books, and other relevant publications that supported the discussion of the research topic. This approach was chosen to gain a deep understanding and a strong theoretical foundation from existing literature.

3. RESULT AND DISCUSSION

Result

Based on field data analysis and documentation of losses collected after the flash flood disaster in Pemandian Lubuk Minturun on November 27, 2025, massive damage to infrastructure and community property was found. The data shows that 14 shop houses were swept away by the flash flood, with estimated

material losses ranging from IDR 3 million to IDR 30 million per unit. The details of the losses include four shop houses suffering losses of IDR 3-5 million, three shop houses IDR 4-5 million, four shop houses IDR 5-6 million, one shop house suffered losses of IDR 5-8 million, one shop house suffered losses of IDR 7-10 million, one shop house suffered losses of IDR 10-15 million, and one shop house suffered the greatest losses of IDR 20-30 million, bringing the total estimated losses from damage to shop houses to more than IDR 100 million. In addition to commercial buildings, residential areas were also significantly affected, with at least one house suffering severe damage that rendered it unusable and three other houses suffering minor damage. An inventory of valuable items lost shows the loss of various important assets, including refrigerators, televisions, speakers, showcases, stoves, and gas cylinders, which not only caused financial losses but also disrupted the normal activities of the community after the disaster.

The economic impact of this disaster has been significant on the livelihoods of communities around the Lubuk Minturun bathing area. Based on initial reports from local residents, losses of income range from Rp 5 million to Rp 30 million per person, with this wide range reflecting the variety of business scales and types of livelihoods affected. Traders and business owners around the tourist area suffered the greatest losses because they not only lost their business premises, but also their entire stock of merchandise, operational equipment, and access to consumers. The cessation of economic activity in this area created a domino effect that impacted the household economies of the surrounding community. In addition to direct economic losses, the flash floods also disrupted the clean water supply system in the affected areas due to mud and sediment contaminating water sources and damaging distribution infrastructure, making it difficult for the community to access clean water for their daily needs.

The psychological impact experienced by the affected communities was also an important finding in this analysis. The trauma caused by the sudden and destructive flash floods created a sense of fear and anxiety about the possibility of a similar disaster recurring. The loss of property, homes, and sources of income caused prolonged stress for the victims, especially those who lost all the assets they had built up over many years. Based on the compilation of all data, it is estimated that the total material losses suffered by the community reached hundreds of millions of rupiah, not including indirect losses such as lost economic opportunities, public infrastructure recovery costs, and the long-term impact on the tourism sector in the region. These findings confirm that flash floods caused by extreme rainfall of more than 200 mm per day have resulted in significant multidimensional losses for the community, covering economic, social, and psychological aspects that require comprehensive and sustainable handling.

Discussion

Flash floods are fast-moving floods that generally carry soil (in the form of mud), rocks, and wood. Due to the speed of the flood flow accompanied by these materials, flash floods are usually very destructive and cause casualties in the areas they pass through because there is no time to evacuate when they occur, and damage to buildings occurs due to the onslaught of floods carrying materials. Several factors are believed to cause flash floods, including the following: -Mountainous geomorphology and steep slopes, -Geological formations consisting of young volcanic rocks, -Vegetation cover that does not support rainwater absorption, such as deforested areas and critical land, -Changes in land cover, particularly from forest to non-forest vegetation, -Landslides that cause rivers to become blocked upstream.

Based on the results of a survey conducted by YPM and JICA (2011a), the signs preceding flash floods, especially those occurring in Jember Regency, are as follows: - Heavy rain - Many fallen trees - Wood carried into residential areas - Higher water discharge - Murky water - Shrinking river water surface - Rumbling sounds Based on these signs of a flash flood, it can be explained that heavy rain causes river water discharge to increase, landslides cause wood to be carried away and the river water to become murky, leading to the blocking of river flow. The blockage of the river channel causes the water level to drop because the water is dammed up. Meanwhile, the rumbling sound is an indication of very fast water movement carrying wood and stone material as a result of the river blockage breaking.

Flash floods in Indonesia are showing an increasing trend. Frequent earthquakes in Indonesia have caused the cohesive structure of rocks and soil layers to become prone to landslides. Earthquake tremors cause cracks in young volcanic rock layers, making them prone to landslides. This can be seen in Wasior, where nearly half of a hill collapsed, damming a river upstream (Syamhudi, 2012). Even during the dry season, some areas experience flash floods due to the extreme weather effects of tropical cyclones in northern Indonesia.

To identify flash flood hazard zones, it is necessary to map hazard areas using a geomorphological and hydrological approach. As explained in a publication by Lavado et al (2007), although base maps with a scale of 1:25,000 can identify some geomorphological features, the use of aerial photographs with a larger

scale will be able to analyze the relationship with information on the height of floods that have occurred (which are generally between a few centimeters and several meters). By combining geomorphological data (distribution of alluvial fans, channel migration, erosion and sediment deposition) and river flow data (water level and water velocity), using water energy criteria (the ability of water to carry river materials such as large rocks, medium rocks, and gravel), water velocity, and water level, it is possible to delineate flash flood hazard zones.

The relationship between hydrometeorology and social science is crucial in dealing with flash floods (Montz, 2002). Therefore, in addition to understanding hydrometeorology, social issues are equally important in dealing with flash floods. This is particularly relevant to the response to flash flood warnings. Basically, in dealing with the dangers of floods and flash floods, there are three approaches, namely (a) strengthening oneself, by building retaining embankments, strengthening flood control structures, etc., (b) avoiding dangerous areas, such as by seeking relatively safe areas, for example, not living in low-lying areas or floodplains, (c) living in harmony with the hazard, by understanding the behavior of the disaster so that one can adapt.

4. CONCLUSION

The conclusion of this study confirms that the flash flood tragedy that occurred in the Lubuk Minturun bathing area, West Sumatra, Padang, on November 27, 2025, caused significant losses to the surrounding community. These losses included property damage, loss of income, and psychological impacts. Risk analysis indicates that factors such as extremely high rainfall, deforestation, and changes in land cover were the causes of the flash flood. Efforts to prevent and mitigate disasters are needed to reduce the risk and impact of flash floods, as well as to raise public awareness of the importance of protecting the environment and reducing disaster risk. This can be done by mapping hazard areas, improving early warning systems, and conducting reforestation and greening initiatives.

Thus, it is hoped that this will reduce the risk and impact of flash floods in the future, as well as improve the safety and welfare of the surrounding community. This research is expected to contribute to the development of science and technology in the field of disaster mitigation, as well as serve as a reference for the government and community in disaster prevention and management efforts. A more in-depth study is needed to further identify the factors that cause flash floods and develop more effective mitigation strategies. In addition, it is also necessary to evaluate existing disaster mitigation policies and programs to ensure that disaster prevention and response efforts can be carried out effectively and efficiently.

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