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Socialization of Flood and Landslide Disaster Mitigation as a Lesson for Elementary School Students in Cikondang Village, Hantara District, Kuningan Regency

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ABSTRACT

The geographical location of the Indonesian archipelago, which is at the meeting point of the Indo-Australian Plate, the Eurasian Plate, and the Pacific Plate, as well as the many mountains, valleys, and rivers, has caused Indonesia to frequently experience various disasters including earthquakes, landslides, floods, droughts, tsunamis, and others. The community's ignorance in dealing with various disasters has caused many victims which could have been reduced or avoided if they were willing to study the character of each disaster by carrying out disaster mitigation activities. Cikondang Village, Hantara District, Kuningan Regency is a village that has various unique features with varied land contours, there are low and highlands which have caused Cikondang Village to have various disaster risks because of its location on the Cipedak and Cibasale river flow routes, and also Mount Chulamega. , hills and valleys are also found around Cikondang. Among the most frequent threats are flash floods and landslides from cliffs in Cikondang Village. With disaster mitigation activities, it is hoped that the public will become aware of the importance of prevention through various efforts such as socializing natural disaster management and how to avoid them. Increasing knowledge of how to save oneself from various disasters is our goal in holding this disaster mitigation activity.

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INTRODUCTION

As an archipelagic country that is geographically located between two large continents, namely, the Asian Continent and the Australian Continent, Indonesia is also located between two large oceans, namely the Indian Ocean and the Atlantic Ocean (Syaifullah M. D., 2015; Maulana, Ibrahim, & Bunari, 2023). Apart from that, Indonesia is geologically located at the meeting point of three large tectonic plates, namely the Indo-Australian Plate, the Eurasian Plate, and the Pacific Plate (Murdiaty, Angela, & Sylvia, 2020). Apart from that, the large number of mountains, hills, and valleys in the territory of Indonesia have caused various types of disasters to occur in Indonesia, ranging from earthquakes, landslides, forest fires, droughts, floods, volcanic eruptions, and tsunamis that have occurred in several parts of the Indonesian world. As can be seen in the table of tsunami events in Indonesia (See Fig. 1) (Utama, et al., 2023; Ubaydillah, 2023; Ibrahim, Syamsidik, Azmeri, & Muttaqin, 2023; Ario, et al., 2023)

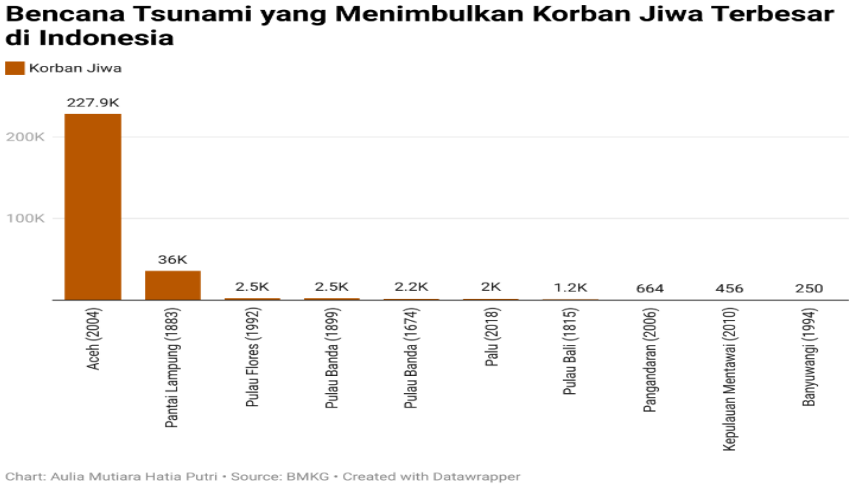

FIGURE 1.Tsunami Disasters caused the largest loss of life in Indonesia (chart by Aulia Mutiara Hatia Putri: Source: BMKG, created with Datawrapper)

The Profile of Cikondang Village

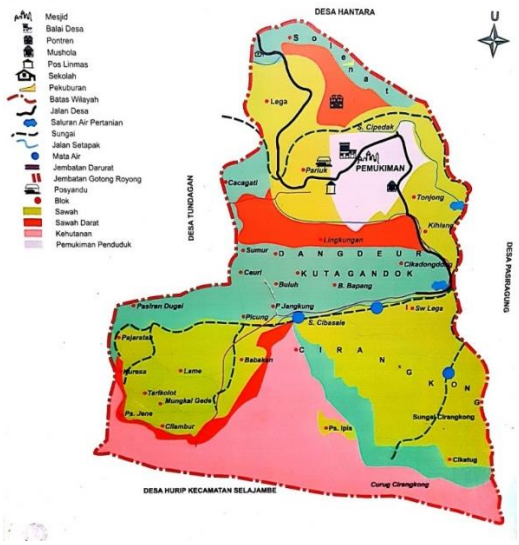

FIGURE 2. Map of Cikondang Village (Nuryanah, Profil Desa CIkondang, 2023; Nuryanah, Program Kerja Kepala Desa, 2023)

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Cikondang Village is one of the villages in Hantara District, Kuningan Regency, consisting of 5 (five) *RT*s and 2 *Dusun*s. Cikondang Village is a village located under Mount Hurip which borders Tundagan Village to the West, Hantara Village to the North, Pasiragung Village to the East, and Padahurip Village, Selajambe District to the South. Judging from its geographical location, Cikondang Village is a hilly and mountainous highland area with a height of 415 above sea level and has rainfall of 2.60 mm/year with a total area of 205.39 Ha. Cikondang Village has adequate natural resources which are ready to be processed. The land areas consist of rice fields covering an area of 46.6 ha, plantation land 65.161 ha, forest 82.23 ha, and others 93.629 ha.

The geographical condition of Cikondang Village is an agricultural area in the form of rice fields, gardens, and moors, with a height above sea level of the lowest area in the form of a valley of about ± 300 m, and the highest is ± 1,000 m in the form of a hill. The average temperature is 25 ^{O}C - 30 ^{O}C. In general, there are two seasons throughout the year, namely the rainy season (September – January) and the dry season (April – August). Based on the hydrology, the river flows in the Cikondang Village area form a watershed pattern, namely the Cipedak and Cibasale Rivers.

Only in 2023, Cikondang Village experienced a very extreme rainy and dry season. At the beginning of April 2023, Cikondang Village, which flows by the Cipedak and Cisabale rivers, experienced a flash flood in one of its rivers which caused a factory located on the riverbank to be heavily damaged and swept away by the flash flood disaster. On one of the hills that can be seen when entering the Cikondang Village area, there are quite long landslide marks that occur during continuous rain. Meanwhile, in December, the long dry season was still hitting Cikondang Village and several surrounding villages. Drought conditions due to a fairly long dry season had also caused crop failure for several agricultural products such as rice, chilies, onions, nuts, and various plants that required daily watering due to the difficulty of getting water to water the plants.

Problems Encountered

Based on the work program of the Cikondang Village Head, for the period of leadership of Village Head Lia Nuryanah in one of her programs, namely *Darma Ka Lemah Cai*, she attempted to collect data on the Cikondang village land area, which water sources must be protected, prohibited forests, cover, *baladahan*, then one by one the Village Heads tried to make it happen. Then another Village Head program, namely one *RT* (Neighbourhood Unit), one product, has produced a product that is quite popular with the public in the form of processed food products from peanuts, namely peanuts made from peanuts wrapped in dumplings. There are still many Village Head work programs that currently have to be faced. Of the many work programs and current conditions, three work programs are being carried out, namely: planting trees that can store water to create springs, or maintaining existing springs so they can increase production. However, when this service activity was carried out, Cikondang was still hit by the hot or dry season which was still hitting the village. To plant the trees, you had to wait until the rainy season arrived, so the program was postponed until the rainy season arrived.

Based on the phenomena that occurred, namely flash floods that occurred in early April 2023 which caused a factory to be swept away by the flood and landslides during the extreme rainy season, it became an inspiration to provide education to Cikondang residents about disaster mitigation. Based on the results of the dialogue with the village head, training was provided to people in the educational environment, namely students in schools in Cikondang village. Due to the new elementary school in Cikondang, training was delivered to elementary school students and village officials.

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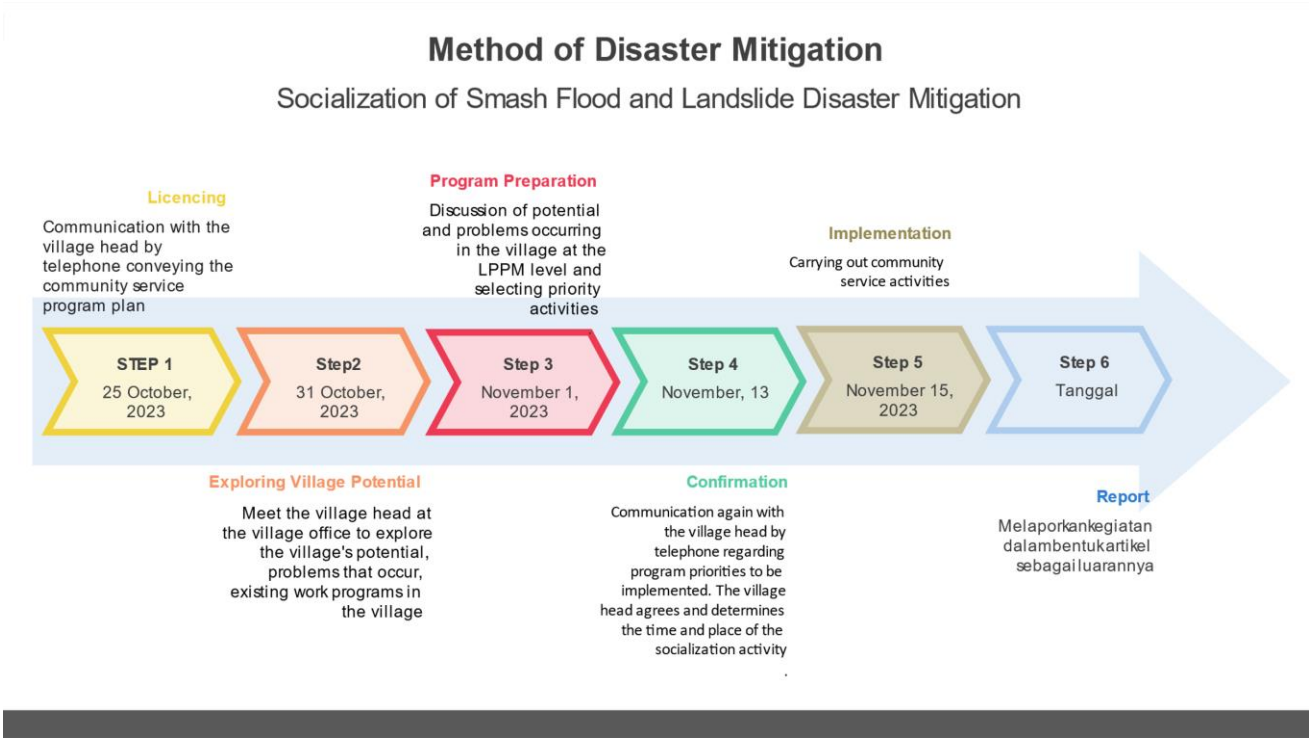
ALTERNATIVE SOLUTION

Disaster Mitigation Education at Alternative Solusi Elementary School

Natural disasters in Cikondang Village that occurred some time ago including flash floods that occurred in early April 2023 which caused a factory built on the riverbank to be swept away by the flash flood currents. The condition of the factory building was destroyed by the current, including the rice milling machine. The second problem was the location of the cliff which experienced a landslide which was located some distance from the settlement. Of this phenomena flash flood and landslide disaster mitigation were necessary to be carried out (Teguh, Aminatun, & Erlangga, 2020; Pasteruk, 2020)

(See: https://www.youtube.com/watch?v=UM5fO2336c4&ab_channel=LEBAKHERANGTV)

FIGURE 3. The Flash flood that caused one building destroyed and a landslide at Cikondang Village



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To reduce the risk of victims of flood and landslide disasters in the future, it was necessary to conduct outreach on disaster risk reduction (disaster mitigation) to prevent unwanted victims from occurring (Putri, 2022). To carry out this activity, based on the results of discussions with the village head, the possible participants who could be invited were students, teachers, and village officials. Based on the results of communication with the school principal and villagers, landslide and flood disaster mitigation activities were carried out on Wednesday, November 15, 2023. Activities in the form of delivering material and showing animated films on handling landslides and flood disasters, followed by questions and answers, aimed at providing information on disaster mitigation. could be conveyed back to those closest to him, such as their families, playmates, or anyone else about the importance of maintaining security, safety, and protection from disasters, at least how to provide early rescue if a disaster occurs.

FIGURE 4. Training and Socialization of Disaster Mitigation in Cikondang Village

Why choose elementary school children? The reason for selecting elementary school children is because Cikondang Village is located far from urban areas, so the only new educational facilities were elementary schools. With elementary school participants, it was hoped that the knowledge would be for themselves and could be passed back to their families and/or other communities (Dewi, 2019). The importance of disaster mitigation education could be the beginning of disaster outreach activities in the world of education. The training participants were also attended by adults from village officials and teachers. From here, it was hoped that village officials could convey back to the surroundings about disaster mitigation so that people could be more alert when a landslide or flood occurred (Indonesia, 2019; Indonesia, SiAGA Tanah Longsor, 2020; Indonesia, Penanganan Bencana: Pascabencana, 2018).

FIGURE 5. Parts of the video about the mitigation of a landslide and flood

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Chronology of activities

The activity began with the communication with the village head to explore the village potential of Cikondang Village. The data obtained was village potential data contained in the village profile and the Village Head's work program. Apart from that, the Village Head also informed us of several extraordinary incidents that had occurred in CIkondang Village some time ago.

Based on the results of interviews with the Village Head, the following information was obtained regarding the village profile and work program of the Village Head:

At the beginning of 2023, when the extreme rainy season hit the Cikondang area, at the beginning of April 2023, Cikondang Village was hit by a flash flood which caused a rice milling factory building located on the river bank to be carried away by a flash flood which caused the entire factory building to be destroyed and the milling machine as well. being swept away (TV, 2023). Apart from that, the Cikondang area, where the contour of the land was hilly, also showed landslides on cliffs which could be dangerous if they were near residential areas. From these two phenomena, the idea emerged to hold disaster mitigation outreach activities, which then became a core activity that could be implemented immediately.

Towards the end of 2023, the village experienced a drought that was severe enough that residents lacked a source of clean water. From this information, the village officials planned to plant plants that could store water so that new springs emerged from around the hill. Due to the long dry season, planting activities could not be carried out yet and would only be carried out when the rainy season returned to normal.

In the economic sector, Cikondang Village was trying to develop a one village one product business (OVOP), one of which was *umpet* bean (peanut hidden in wonton products, a type of snack made from peanuts wrapped in dumplings, then rolled. *Umpet* beans which contain three beans are rolled into dumplings, then fried and have a spicy flavor as a variant. It was hoped that from this *umpet* bean product, a superior village product would be produced which would become a product that continued to be produced, and the sales process was still traditionally produced. From the findings of this village's superior product, it was hoped that it would become Cikondang Village's mainstay product in the future with a wider market share through marketing digitalization.

DISCUSSION

Kuningan Regency, the smallest district in West Java with hilly and mountainous land contours geographically, geologically, hydrologically, climatologically, and demographically, allowed it to be an area that had areas that were prone to disasters. All 32 sub-districts in Kuningan Regency were considered prone to hydro-metrological disasters such as land movement, landslides, and floods. According to the Chief Executive of BPBD Kuningan Regency, Indra Bayu, there were 15 to 16 sub-districts which were included in disaster-prone and developing areas such as Kadugede, Karangkacana, Selajambe, Nusaherang, Hantara, Darma, Subang, Cilebak, Ciniru, Ciwaru, Cimahi, Cibeureum, Cibingbin sub-districts, Luragung, Maleber, Garawangi and Cidahu. At least 16 sub-districts in Kuningan Regency are indicated to be prone to landslides. Based on the data from BPBD Kuningan Regency, until 2023 Kuningan had 48 areas prone to forest fires, 158 areas prone to landslides, 4 areas prone to landslides, 29 areas prone to strong winds, 8 areas vulnerable to landslides. floods, 18 points were prone to drought, and so on. To overcome or reduce the risk of disasters, BPBD has carried out various disaster mitigation activities in villages that were at risk of disasters.

To assist BPBD in socializing disaster mitigation, we, LPPM Kuningan University, through our Assisted Village activities in Cikondang Village, Hantara District, carried out flood and landslide disaster mitigation activities for elementary school children and teachers along with Cikondang village officials. With disaster

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mitigation activities in the form of socialization and training by providing education in the form of material presentations and showing disaster videos starting from the causes of floods and landslides and how to deal with them to reduce the risk of disasters, it was hoped that it could make the residents of Cikondang Village aware to be more careful and not build carelessly houses in riverbank areas or close to cliffs.

FIGURE 6.Disaster Infographics of Kuningan Regency (source: BPBD)

In terms of handling flash floods, in Cikondang Village, which was crossed by the River, the village head was aware of the importance of the safety of its residents from the brunt of floods which sometimes occurred when continuous rain fell on the CIkondang village area by repairing the fortifications around the River which passes through. housing for residents, as well as prohibiting people from building houses in riverbank areas because they were afraid of repeated flooding events for the safety of their residents.

As for dealing with landslides, the Village Head reminded residents, especially those whose houses were close to cliffs, to be careful, and if possible, when the rainy season approaches which continued to pour down on the village, they should first move to a safer place.

In addition, the village officials were trying to budget from its village funds to build or plant landslide-resistant trees with trees that have supporting roots such as bamboo trees, mangrove trees, and pandan trees.

Apart from that, Cikondang Village experienced a shortage of clean water, especially during the long dry season. To overcome the lack of clean water, the village head would plant trees that could store water to create new springs around production forests which were intended to protect springs to meet the needs of local communities. So for this purpose, it was necessary to plant broad-leaved trees or trees that had low water evaporation and were also called hardwood trees such as banyan, kawung trees, and palm family trees such as coconut trees, date palms, palms, and others.

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CONCLUSION

Based on the problems found in the field, we saw that the problem of floods and landslides was a problem in almost every sub-district in Kuningan Regency as stated by the Head of BPBD Kuningan Regency in Kuningan Regency there are at least between 15-16 sub-districts which were vulnerable, landslides, floods, forest fires, earthquakes, droughts, etc.

CIkondang Village, as one of the villages that was prone to disasters, especially landslides, floods, and droughts, was trying to find solutions to the various problems it faces, including the problem of floods and landslides, one of the ways to handle this was by providing natural disaster mitigation education to the general public and elementary school students, teachers. and village officials in particular who were participants in disaster mitigation outreach. With this outreach activity, we expected that the community would be better prepared for any disaster that might strike, starting from preparations before, during, and after a disaster occurred.

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