



## Analysis of Vulnerability and Effectiveness of Strengthening Community Collaboration in Disaster Mitigation in Bukit Lawang Plantation Tourism Village, Bahorok District, Langkat Regency

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#### ABSTRACT

Flooding is one of the unexpected natural phenomena that often occurs in all parts of Indonesia, one of which is in the tourist village of Bukit Lawang Plantation. Precisely on November 2, 2003, a flash flood occurred. Therefore, at this time the flood hazard in Bukit Lawang Plantation Village is clearly visible, it is necessary to know how vulnerable the flood danger is in Bahorok district, so that the community can anticipate and be vigilant if the flood disaster occurs again. This study aims to analyze the vulnerability and effectiveness of strengthening community collaboration in disaster mitigation in Bukit Lawang Plantation Village, Bahorok District, Langkat Regency. This area is one of the ecotourism destinations that is prone to flood disasters, especially flash floods that have occurred several times. The approach used in this study is a qualitative descriptive method with data collection through interviews, field observations, and documentation studies. This study identifies various factors that affect the level of vulnerability of communities to disasters, including physical, social, economic, and environmental vulnerabilities. The results of the study show that collaboration between the local community, the government, and related parties in disaster mitigation in Bukit Lawang Village has not been optimal. Despite several mitigation efforts such as riverbank elevation and disaster preparedness training, communities still face high risks due to a lack of effective coordination and engagement. In addition, community vulnerability is exacerbated by limited access to mitigation resources and a lack of understanding of disaster risk. This study recommends increasing more effective collaboration between local communities, governments, and the private sector through community-based mitigation programs, which involve disaster education, capacity building, and better infrastructure planning. Strengthening this collaboration is expected to increase community resilience to future disaster threats and support the sustainability of ecotourism in Bukit Lawang.

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## INTRODUCTION

Tourism is one of the sectors that has an important role in the economy of a region. However, uncontrolled tourism development can have negative impacts such as environmental damage, social inequality, and uneven economic impacts. To address these challenges and promote sustainable development, the Sustainable Development Goals (SDGs) have become global guidelines for various sectors, including tourism. A Tourism Village is a village area that is developed and organized in a specific manner for Tourism purposes. In Permenparekraf Number 13 of 2020 Article 1 Paragraph 30 Tourism Village is a tourist destination area that integrates Tourist Attractions, public facilities, Tourism Facilities, Accessibility, which is presented in a structure of community life that is integrated with applicable procedures and traditions. Meanwhile, according to Nuryanti (2016) Tourism Village is a manifestation of a combination of attractions, accommodation and facilities that are packaged in people's lives that are integrated with tradition so that they become tourist destinations.

Bukit Lawang Plantation Tourism Village is a tourist area located in the plantation village of Bukit Lawang, Bahorok District, Lalat Regency, North Sumatra Province. Village This tourism was formed in 2021, this village is in the Development stage, where tourist destinations have experienced development in terms of attractions, amenities and accessibility. This 1926.60-hectare area is located within Mount Leuser National Park and is known as an attractive ecotourism destination for local and international tourists (Liyushiana et al., 2023). The village is also home to a rare species of Sumatran orangutan, which is only found in the Gunung Leuser National Park area, and offers a variety of natural tourism activities, such as jungle trekking and rafting on the Bahorok River. In addition, its natural beauty includes clean rivers, interesting caves, and running and mountain biking trails for sports enthusiasts. Located just a few hours from the city of Medan and Kualanamu International Airport, Bukit Lawang Plantation Village offers happiness and tranquility that is hard to find anywhere else, with clean air and crystal clear rivers. The experience of the flash flood disaster that occurred in 2003 in Bukit Lawang, which resulted in heavy losses both in terms of material and casualties, emphasizes the importance of disaster mitigation efforts in this region. This incident shows that local communities need to have adequate capacity to deal with the threat of disasters that can occur at any time. Therefore, efforts to map vulnerability and strengthen community capacity in disaster mitigation are very important to be carried out. Disaster vulnerability mapping is a crucial first step to understand the potential risks in Bukit Lawang Village. With good mapping, information about disaster-prone areas can be obtained in more detail, so that mitigation strategies can be designed on target. In addition, strengthening community capacity is also a key element in disaster mitigation efforts. Local communities that have good understanding and skills in dealing with disasters will be better prepared to take preventive, responsive, and rehabilitative actions when disasters occur. Through this study, it is hoped that the level of vulnerability of Bukit Lawang Village to disasters and effective strategies in strengthening community capacity can be identified.

Thus, the Bukit Lawang Plantation Tourism Village is not only able to preserve the environment and its natural beauty, but is also able to become a resilient community in the face of disasters, which in turn will support the sustainability of the tourism sector in the region. The Research Objectives in this study are : To identify and map the vulnerability of tourism areas in Bukit Lawang to potential natural disasters, To Increase the collaboration of the tourism

community in disaster mitigation to protect visitors and local residents, and To Develop a disaster mitigation plan that is integrated with tourism activities to ensure the sustainability of the destination.

## METHODS

This research is a qualitative type of research with a descriptive approach, According to Strauss and Corbin (2007:1) in Kedewan et al., (2022), qualitative research is a type of research whose findings are not obtained through statistical procedures or other forms of calculation. Although the data can be calculated and conveyed in numbers as in the census, the analysis of the data is qualitative. Qualitative research refers to the analysis of non-mathematical data. Therefore, it can be concluded that qualitative research is research that produces analysis procedures that do not use statistical analysis procedures or others. The results of the description research obtained from the field and. Qualitative research method with a descriptive approach is a research approach that aims to describe and understand a phenomenon or event by collecting descriptive data in detail, then analyzing it qualitatively, and In data collection, the author has two data sources, namely primary data through interviews and secondary data through observations, journals, documents, books, and the internet. which is competitive and identifies the process of formulating strategies and recommendations for data and information effectively. This research is a resource person, namely the Village Head, the Chairman of the Pokdarwis, the Tourism Village Manager, the local community, the HPI of the NGO and local tourism actors.

## RESULTS AND DISCUSSION

Bukit Lawang, a well-known ecotourism area in Langkat Regency, North Sumatra, has high natural tourism potential, but on the other hand it is also vulnerable to natural disasters such as flash floods and landslides. This area is located along the Bahorok River which divides the ecotourism area and is often the starting point for disasters, especially during high rainfall. The vulnerability of this area is influenced by various factors, one of which is geographical conditions and human activities that do not pay attention to environmental aspects in a sustainable manner. By getting some information about the vulnerability to natural disasters in Bukit Lawang from one of the tourism village actors, namely pokdarwis and one of the residents of the flash flood victims of the Bukit Lawang Plantation village.

### Vulnerability to Natural Disasters in Bukit Lawang Plantation Village

Bukit Lawang Plantation Village is located in Bahorok District, Lalat Regency, North Sumatra, and is known as a popular natural tourism area. However, the region also has a high level of vulnerability to natural disasters, especially flash floods and landslides.

#### 1 Geographical conditions

Geographical conditions that cover the hilly lawang plantation area with very high rainfall increase the risk of landslides and floods. The Bahorok River, which is the main stream in the village, often overflows as the intensity of the rain increases, mainly due to narrowing in some parts of the river. In addition, although there is no illegal logging activity in the area, the accumulation of natural materials such as fallen wood from the avalanche exacerbates the

situation during floods. These factors indicate that naturally, the region is very vulnerable to natural disasters, especially in the rainy season.

The Bahorok River itself has two main streams, left and right, both of which often overflow due to high rain intensity, especially in the tropical rainy season. The narrowing width of the river in some areas exacerbates the risk of overflow. In terms of soil conditions, the hilly areas around Bukit Lawang often experience landslides, especially in areas affected by road construction or other activities that do not take into account environmental aspects. The construction of roads without strengthening the soil structure and the lack of landslide barrier vegetation accelerates soil erosion. This causes landslides to become a big threat, especially in the rainy season.

## 2 Social conditions,

The level of community concern in protecting nature is still relatively low. Gotong royong activities that aim to clean the environment often do not run optimally due to lack of participation and lack of awareness of the importance of protecting nature. This has led to weaknesses in disaster prevention efforts, where communities still do not fully understand their role in mitigation. For example, environmental cleanliness and efforts to prevent potential disasters are often overlooked. The mutual cooperation activities held only took place sporadically, which showed a lack of coordination and collaboration between residents in protecting their environment. Socially, even though there have been mitigation efforts, such as disaster training and socialization, there are still some people who are not fully aware of the importance of disaster preparedness. The lack of regular training and early warning tools that have not been fully installed indicate that there are gaps in disaster mitigation that need to be addressed immediately.

## 3 Economic conditions

The majority of residents in this village work as farmers and tourism actors. The economic dependence of the community on the tourism sector, which is very vulnerable to disasters, puts them in a financially vulnerable position whenever there is a flash flood or landslide. However, when natural disasters such as flash floods occur, as it did in 2003, the impact can be enormous. Tourist facilities are damaged, access to the village is cut off, and economic activities are temporarily suspended, and the level of economic vulnerability of the people of Bukit Lawang Plantation Village is strongly linked to their dependence on nature and tourism.

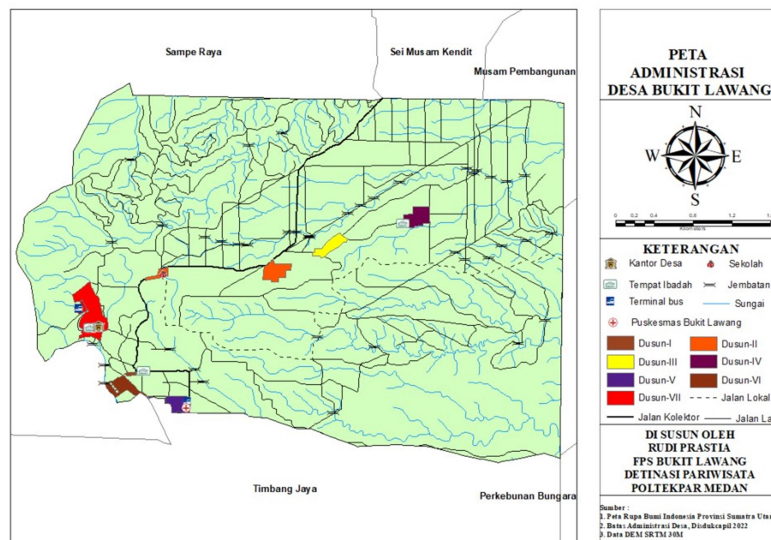
Natural disasters can stop their economic activities for a long time, as well as take a long time to recover. Local government efforts, such as raising riverbanks and installing disaster warning alarms, have not been fully effective. In the past, the alarm system for flash flood disasters had functioned optimally, but currently, the seriousness of related agencies, especially the Regional Disaster Management Agency (BPBD), is considered inadequate. There is still a lot of work that needs to be done, especially in integrating all elements of society and the government in improving disaster preparedness.

Thus, the condition of Bukit Lawang's Vulnerability is further aggravated by the existence of a natural dam located on a mountain. These dams are formed from deposits of wood, soil, and other organic materials, and at any time they can collapse, causing unexpected flash floods.

Early signs before a flood such as small leaves drifting and the sound of clashing gravel are early indicators of a disaster, but socialization about these signs has not been fully evenly distributed among local residents. This makes the area around the river flow very vulnerable to flash flooding, especially if high rainfall occurs for several days in a row.

### Local Community Collaboration in Disaster Mitigation in Bukit Lawang Plantation Village

With the Effectiveness of Local Community Collaboration in Disaster Mitigation which includes the general public and Tourism Awareness Groups (Pokdarwis), which have an important role in disaster mitigation in Bukit Lawang. Pokdarwis collaborates with local communities, such as traders, who act as informants for the Regional Disaster Management Agency (BPBD). However, the role of Pokdarwis in disaster mitigation is still very limited due to various obstacles, such as lack of funds and lack of support from the government. Thus, Pokdarwis needs greater support, including adequate funds to increase public understanding of disaster mitigation through programs such as the socialization of Sapta Pesona, which has not been implemented optimally so far. In the context of collaboration, disaster simulations can only be carried out once a year, depending on the budget from the district government. This year, the simulation was held in Rindu Alam in May. However, limited funding is often the main obstacle to conducting more intensive and thorough disaster training. In addition, the public often underestimates the potential danger of disasters due to the lack of socialization and training provided by related parties. Pokdarwis has also evaluated early warning tools, such as alarms, which should be installed in floodprone locations.



**Figure 1 :** Map of Evacuation Routes and Dangerous Zones of Bukit Lawing

Source : Author Documentation

However, these tools have not yet functioned optimally because there are still gaps in the installation and maintenance of sensor devices. To improve community preparedness, Pokdarwis strongly emphasizes the importance of more intensive collaboration between Pokdarwis, the government, the Forestry Service, local organizations and external parties, such

as non-governmental organizations (NGOs), BPBD, and the TNI, but this collaboration still needs to be strengthened to be more sustainable and effective, in handling disasters. One of the key steps proposed is the preparation of collaborative proposals to fund training, disaster simulations, and the installation of early warning tools. In addition, community involvement in nature monitoring must also be increased, such as through observation of changes in the color of river water which can be an early indicator of flash floods or landslides.

### **Strategies to Improve Community Collaboration in Disaster Mitigation**

Community collaboration is an important element in disaster mitigation, especially in ecotourism-dependent villages such as Bukit Lawang. One of the main strategies implemented is the installation of signage signs that indicate gathering points and evacuation routes in several strategic locations in the village. This evacuation route is very important, especially in the rainy season when the risk of flash floods and landslides increases. The existence of this sign helps local people and tourists to understand safe evacuation routes in the event of a disaster. This also helps speed up the evacuation process and minimize the risk of casualties. In addition to signs, the installation of prohibition banners in disaster-prone areas, such as along rivers and hillsides, is also carried out to warn the public not to carry out activities that can aggravate disaster conditions, such as littering or cutting down trees without permission.

In addition to physical steps such as the installation of signs and banners, collaboration between various parties is also very important to ensure the effectiveness of disaster mitigation. Pokdarwis (Tourism Awareness Group) has a central role in inviting the community, especially tourism business actors such as traders, homestay owners, and tour guides, to be actively involved in disaster mitigation. Pokdarwis collaborates with the Regional Disaster Management Agency (BPBD) and the village government in conducting training and disaster simulations. However, the biggest challenge faced is the lack of financial and policy support from the central and regional governments.

The disaster simulation program, for example, is only carried out once a year and even that depends on the budget allocation from the district. Increased collaboration is also sought through strengthening communication between various elements of society and the government. One of the proposed steps is to hold more frequent meetings and discussions between Pokdarwis, the government, and related agencies to discuss concrete steps in disaster mitigation. This includes clarifying the duties and responsibilities of each party in disaster situations, as well as strengthening the capacity of local communities in terms of environmental monitoring and early prevention measures.

Pokdarwis also recommends the need for regular evaluation of existing mitigation tools, such as warning alarms and river water condition monitoring sensors, to ensure that these tools are always in a condition that is ready for use. In addition, the synergy between Pokdarwis, the community, and related parties, including the police and military, is considered important to provide more effective protection to tourists and local residents. Support from the government to strengthen village infrastructure, such as repairing the road to Bukit Lawang, is also urgently needed, considering that the road is the main access to the ecotourism area and at the same time an evacuation route in the event of a disaster.

With stronger and more planned collaborative efforts, Bukit Lawang Village can increase disaster resilience and protect the potential of ecotourism which is the main source of livelihood for the community. More intensive collaboration between local communities, governments, and

related agencies can strengthen disaster mitigation and maintain the sustainability of villages as safe and competitive natural tourism destinations.

Based on research in Bukit Lawang Plantation Village, the level of vulnerability to natural disasters, especially floods and landslides, is greatly influenced by the geographical, social, and economic conditions of the local community. Geographically, this area is located in a hilly area with a large river that crosses it, namely the Bahorok River. High rainfall, especially in the rainy season, increases the risk of flash floods and landslides. Water flows from upstream areas carrying materials such as mud and landslides exacerbate this situation. Socially, people still do not care about protecting the environment, which is shown by low participation in mutual cooperation activities. This increases the potential for disasters, as poor cleanliness and environmental conditions can exacerbate flood risks. In terms of economy, people mostly depend on the tourism and plantation sectors for their livelihoods, so when disasters occur, they suffer huge losses both directly and in the long term.

The understanding and readiness of the Bukit Lawang Village community in dealing with disasters is still relatively low, even though there have been several initiatives from outside parties. Local residents are not fully aware of the importance of disaster mitigation efforts, especially related to preventive measures and preparedness in dealing with emergency conditions. Factors that affect this low preparedness are the lack of education and training on disaster mitigation, as well as the lack of supporting facilities such as early warning systems and clear evacuation routes. Awareness of the need for environmental protection is also still uneven, and some people tend to be passive in disaster prevention efforts.

To increase community collaboration in disaster mitigation, the Disaster Resilient Village (Destana) program coordinated by BPBD has been initiated in this village. This program involves local communities in disaster mitigation and management training activities. One of the strategies implemented is the installation of signs marking gathering points and evacuation routes as well as prohibition banners in disaster-prone areas. This marker helps the public and tourists in understanding safe evacuation routes in the event of a disaster. In addition, collaborations with several non-governmental organizations (NGOs) such as Project Wings have played a role in raising environmental awareness. Project Wings involves the community in river and environmental cleanup programs to prevent clogging of river flows that can trigger flooding.

In addition, the waste management program is one of the important mitigation strategies involving the community. Sumatra Trash Bank, a local organization, takes a role in household waste management by separating organic and inorganic waste. Organic waste is managed by Destana to be processed into compost, while inorganic waste is processed by Trans Bank into various recycled products such as keychains and flower pots. This program not only helps reduce the volume of waste, but also provides economic value to the community and creates awareness of the importance of maintaining environmental cleanliness as a disaster prevention measure. With collaboration between the government, communities, and non-governmental organizations, mitigation strategies in Bukit Lawang Village can be more effective. Measures such as evacuation markers, waste management, and increasing community awareness are expected to strengthen the resilience of this village in the face of future disasters. Cross-sector collaboration is key to building resilient communities to disasters, reduce risks, and minimize the adverse impacts of future disasters.



**Figure 2** : Evacuation Routes and Gathering Points

**Source** : Author's Document

### **Challenges in Strengthening Collaboration and Community Preparedness**

The biggest challenge in the implementation of disaster mitigation in Bukit Lawang is the attitude of the community who often underestimate the potential for disasters. This low level of awareness is exacerbated by the lack of socialization and training from related agencies.

The government must be more serious in handling disaster mitigation issues, especially in strengthening synergy between various related parties, ranging from Pokdarwis, BPBD, tourism offices, to security forces such as the TNI and the National Police. One example of a serious problem that is still unresolved is the debate over the map of the territory between the three villages around Bukit Lawang. This has led to the slow establishment of clear evacuation points and difficulties in creating safe evacuation routes for tourists and locals. This uncertainty creates additional vulnerability when disaster strikes, especially since there are no official and tested evacuation procedures. Pokdarwis, as the spearhead in mitigation efforts in local communities, has limited resources and needs stronger support from the government. For example, in the process of evacuating tourists during a disaster, Pokdarwis only relies on simple equipment such as toas and rubber boats, as well as warning banners installed at tourist sites. In fact, more detailed procedures and more complete facilities, such as warning alarms and evacuation signs, are urgently needed to improve the safety of tourists and residents.

### **Steps to Strengthen Collaboration for Disaster Mitigation**

The most effective step to strengthen collaboration in disaster mitigation in Bukit Lawang is to hold frequent meetings between the government, local communities, and other relevant agencies to discuss disaster preparedness and risk evaluation on an ongoing basis. Intensive dialogue between various parties needs to be carried out to create seriousness in disaster mitigation, including the preparation of an integrated long-term action plan.

In addition, the government also needs to pay special attention to infrastructure in Bukit Lawang, such as the repair of the road from Binjai which is the only main access to the area. Good infrastructure is very important to support mitigation and evacuation efforts when disasters occur, as well as the installation of warning signs in disaster-prone locations, as well as regular monitoring of natural conditions, such as monitoring river water color and other signs of natural change. However, this collaboration needs to be strengthened with greater resource support from the government, including the provision of funds for disaster simulation training and the installation of more effective early warning tools. They are also spearheading counseling



to the community regarding the early signs of a disaster, such as changes in the color of river water and the sound of gravel that indicates a landslide. However, this collaboration needs to be strengthened with greater resource support from the government, including the provision of funds for disaster simulation training and the installation of more effective early warning tools. And according to Mr. Jumaha Edi and Mr. Yusuf, the government emphasized the importance of improving communication with local communities in disaster mitigation and management efforts.

### **SWOT Analysis (Strength, Weakness, Opportunity, Threats)**

According to Freddy Rangkuti (2005), SWOT is the identity of various factors systematically to formulate a service strategy. This analysis is based on logic that can maximize opportunities but at the same time can minimize shortcomings and threats. SWOT analysis compares between external factors and internal factors. After knowing the Strategy to Increase Community Collaboration in Disaster Mitigation in Bukit Lawang Village, an application was carried out using SWOT analysis techniques that produced four alternative definitions owned by the Bukit Lawang Plantation Village, namely as follows:

#### **1. Strength**

- a. Community Involvement The Disaster Resilient Village Program (Destana) has facilitated the active involvement of the community in various disaster mitigation activities. The installation of signs marking gathering points and evacuation routes, as well as the involvement of residents in preparedness training, demonstrate strong community initiatives.
- b. Collaboration with NGOs Collaboration with organizations such as Project Wings and Trans Bank strengthens the role of the community in environmental management. Their participation in environmental recycling and cleanup activities increases ecological awareness that is directly related to disaster prevention.
- c. Natural Resources in Bukit Lawang Village have great ecotourism potential, which can be used to improve the economic welfare of the community while applying environmental conservation principles.

#### **2. Weakness**

- a. Lack of Awareness and Education  
Some people still do not care about the importance of disaster mitigation and environmental sustainability. This can be seen from the weak culture of mutual cooperation and the lack of cooperation between residents in hygiene and disaster prevention activities.
- b. Low Preparedness Infrastructure  
While there are already signs of gathering points and evacuation routes, physical and technological infrastructure such as early warning systems are still limited, which reduces the effectiveness of rapid response when disasters occur.
- c. Dependence on External Assistance  
Communities are still heavily dependent on outside assistance, such as BPBD and NGOs, so there is no full autonomy in mitigation efforts.

### **3. Opportunities**

#### **a. Sustainable Ecotourism Development**

The potential of Bukit Lawang as a natural tourism destination can be used to encourage environmental conservation and support disaster mitigation efforts. Ecotourism that is integrated with disaster mitigation can be an opportunity to strengthen the local economy while preserving nature.

#### **b. Government and International Agency Support**

With the increasing attention to disasters in tourist areas, Bukit Lawang Village has the opportunity to get more support from the government and international institutions in the form of funding and mitigation training.

#### **c. Waste Management and Recycling Innovation**

The recycling project by Sumatra Trash Bank opens up new economic opportunities for the community by managing inorganic waste. This program can be further developed to create jobs while reducing negative environmental impacts that can trigger disasters.

### **4. Threats**

#### **a. Environmental Damage Due to Human Activities**

High pressure on the environment due to tourism activities and exploitation of natural resources can increase the risk of natural disasters such as floods and landslides. Lack of environmental awareness can exacerbate this damage.

#### **b. High Rainfall and Climate Change**

High rainfall in the Bukit Lawang area, coupled with the threat of climate change, increases the risk of natural disasters. An unpredictable rain cycle poses a serious threat to communities that depend on natural conditions.

#### **c. Lack of Funding for Mitigation Infrastructure**

Despite assistance from various parties, the funds allocated for the development of disaster mitigation infrastructure are still insufficient to ensure optimal readiness in all villages. This threatens the effectiveness of the planned mitigation strategy.

Overall, this SWOT analysis shows that although Bukit Lawang Village has significant strengths and opportunities in disaster mitigation efforts, there are still weaknesses and threats that need to be addressed more seriously, especially in terms of community awareness and preparedness infrastructure. Collaboration between the government, NGOs, and local communities needs to be strengthened to minimize vulnerability and maximize the potential in disaster mitigation in the village.

## **CONCLUSION**

This study concludes that Bukit Lawang Plantation Village has a high level of vulnerability to natural disasters, especially flash floods and landslides. Geographically, the high rainfall in the region, coupled with the landslide-prone topography, is a major factor in the increased risk of disasters. The socio-economic condition of the community also affects the vulnerability of this village. There are still many people who do not care about protecting the environment, and mutual cooperation activities or clean-up actions have not been carried out optimally. This worsens the condition of the village in facing disasters. The economic sector of the community that depends on agriculture and tourism has the potential to be stopped when a

disaster occurs, thereby increasing the economic impact of the natural disaster. Community preparedness in dealing with disasters is still relatively low. Although there have been initiatives from the government and various parties to provide education and socialization related to disaster mitigation, public understanding is still lacking. The lack of regular training and the limitations of preparedness facilities are the main obstacles in increasing community capacity in dealing with disasters. In addition, there are differences in understanding between groups in the community and the absence of strong collaboration between them makes mitigation efforts less effective.

The Disaster Resilient Village Program (Destana), initiated by BPBD together with the collaboration of other parties such as Project Wings and Trans Bank, has made an important contribution to disaster mitigation efforts. This program involves the community in several activities such as the installation of signs marking gathering points and evacuation routes, as well as prohibition banners that can increase awareness and preparedness. In addition, the waste management program by Sumatra Trash Bank through organic and inorganic waste separation, as well as recycling initiatives, also plays a role in protecting the environment and providing additional economic impact for the community.

Strategies to increase community collaboration in disaster mitigation are urgently needed to reduce village vulnerability. There needs to be increased coordination between the government, NGOs, and the community in planning and implementing disaster mitigation programs. The formation of a solid working group and regular meetings to discuss more effective measures will help strengthen this collaboration. In addition, increasing education through socialization and continuous training on disaster preparedness is very important to form a society that is more aware and ready to face potential disasters. Overall, the integration of geographical, social, and economic factors, as well as community capacity building and cross-stakeholder collaboration, is urgently needed to create a more resilient Bukit Lawang Plantation Village in the face of disasters. Support from various parties, especially in terms of funding and facilitation of mitigation programs, needs to be increased so that existing mitigation measures can be implemented effectively and sustainably.

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